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THE

NATURAL HISTORY

OF THE

SACRED SCRIPTURES,

AND

Guide to General Zoology;

ILLUSTRATED BY

UPWARDS OF THREE HUNDRED COLOURED ENGRAVINGS,

THE WHOLE ARRANGED AND WRITTEN FROM THE BEST AND MOST MODERN AUTHORITIES,

By W. I. BICKNELL,

LICENTIATE OF THEOLOGY, AND AUTHOR OF "THE ILLUSTRATED LONDON," "THE ILLUSTRATED PARIS," ETC., ETC.

VOL. I.

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PREFACE.

PICTORIAL Illustrations of the Holy Scriptures, having been usually published in an expensive form, are, of course, accessible but to few. The publishers of the present work, in compliance with the conditions originally proposed, having now redeemed the pledge then given, are pleased to find that their endeavours have been met with ample encouragement. They do not wish to conceal the satisfaction, which a large sale of the SCRIPTURE NATURAL HISTORY has afforded them.

The embellishments to the work likewise require no comment; they will bear comparison with any work of the same kind, be the price of its publication what it may. The colouring of the plates has been done by a new process; and recommends itself to every lover of the arts.

For himself, the Editor, in conclusion, does not think it inconsistent with modesty to aver, that no pains have been wanting on his part, to collect and condense the largest amount of modern information, into as small a compass as possible. Without troubling the reader with many references, it may suffice to say, that the foundation

of this little work has been based upon the older writers of Natural History, such as Pliny, Scheuchzer, Linnæus, Derham, Ray, Buffon, Goldsmith, Lacepede, Harris, and Paley; while the materials for the superstructure have been chiefly derived from the more modern productions of Latreille, Cuvier, Kirby, Spence, Wilson, Audubon, Griffith, Smith, Pidgeon, Gray, Rennie, Swainson, Gould and others. The Editor commends both his readers and his work to the blessing of God.

W. I. B.

London

SCRIPTURE NATURAL HISTORY.

MAN.

IN HEBREW, *Adam.*—IN ENGLISH, *Red; Handsome.*

"*So God created Man in his own image, in the image of God created he him; male and female created he them.*"—GEN. chap. i., verse 27.

THE first class of animals, whether living on land or in water, are called MAMMALS, designating those which suckle their young; and amongst these, MAN claims the first order. Although man was the last of God's works, yet being made, according to the phraseology of Scripture, "in the image of God," we may be sure that he would be endowed with faculties, intellectual and physical, which should place him beyond all other creatures. And such we know to be the fact.

The structure of the whole human frame demonstrates that man alone was designed to be in an erect attitude. He is very properly called *bimana*, or *two-handed*, an appellation which can be given to no other animal. Examining the skeleton, we find that the two articulating surfaces of the *occiput*, or hinder part of the head, by which the skull is connected with the spine, are so placed on each side, that a vertical line passing through the centre of

gravity of the head, would fall almost exactly between them, and on the top of the spine. The muscles, also, at the back of the head are so large, and so conveniently arranged for the full exercise of their power, that the effort required of them to hold up the head is so slight, that it may be done, throughout the day, without producing fatigue. In an horizontal position, as in the horse, man would have the heaviest head, with the least power of supporting it. The position of the face is, moreover, peculiar. In man, the face is immediately beneath the brain, a form exactly adapted for an erect posture. The eyes, in this position, can best perform their function with accuracy; the cavities of the nose are in the best direction for inhaling odours; the jaws not projecting in front of the forehead and chin.

The position of the back-bone shows the same fact: for when the body is in an erect posture, its curves are so arranged, that a vertical line, drawn from the summit, would fall exactly on the centre of its base. The lumbar portion of the back, is of considerable length, and embraced by muscles at once long and strong, better to overcome the weight of the bowels in front, and prevent their being drawn forward or downward. The spinal processes in man are larger than in other animals, whilst those of the neck are scarcely prominent, the head being nearly balanced on the upper bone of the neck. The reverse of this is the fact in animals. The *sacrum*, or lowest bone of the back, is of great breadth, and fixed between two widely-extended haunch bones, forming the side walls, so to speak, of a broad *pelvis*, or basin. This bone, by its great

width, forms an ample cavity for the support and defence of many of the *viscera*, especially in females; while the distant separation of the haunches and thighs form the basis of a wider and more secure support.

The lower extremities of man are likewise remarkable, being, almost without exception, of greater length, proportionally, than in other animals. This, for an horizontal position, would be inconvenient, although eminently advantageous for one erect. The length of the thigh is another peculiarity in man, raising the whole figure, so that the arms, in a standing posture, only reach to the middle of the thigh. The human foot is, moreover, very large, broad, and strong, giving superior stability to the whole frame; enabling man alone, of all the *mammals*, to stand upon one leg. The foot is, beside, peculiar from the bone of the heel, and the position of the toes, obviously designed for locomotion only.

There is a complexity and completeness in the upper extremities of man, that, in the opinion of Sir Charles Bell, "we ought to define the *hand* as belonging exclusively to man." Its perfection, as an organ of prehension, is due partly to its own construction, and partly to the form of the parts with which it is connected; for "the whole frame must conform to the hand, and act with reference to it." A powerful collar-bone, which keeps the shoulder and arm apart from the chest, gives man much power, in common with other animals; besides a powerful lateral and inward motion of the arm, and a wide range for action beyond the body. The structural perfection of the human hand is due

chiefly to the size, and strength of the thumb, which can be brought into exact and powerful opposition to the extremities of the fingers, they being separately moveable, and each in its turn can be employed in association with the thumb. It is peculiar to man that the hands and feet are so different from each other. The upper extremities are employed for prehension and dexterity of handicraft; while the lower ones are used only for support and motion.

Another peculiarity in man is the ability which he possesses of living in almost any part of the world, and of thriving alike in either extreme of natural temperature. The Greenlanders and Esquimaux, for example, have reached 70° or 80° of north latitude, while the negro of Africa, and the red man of America, live under the Equator. Europeans, even, accustomed to a temperate climate, are but little inconvenienced by wintering in a high northern latitude, or bearing, with comparative indifference, the temperature of the hottest climes. In the valleys, and in elevated table lands, man is found domiciled, regardless of the various degrees of atmospheric pressure. He can, besides, subsist upon almost all kinds of food. In temperate climates, where animal and vegetable food can easily be procured, man is truly omnivorous; meat, fish, vegetables, fruits, and roots, are alike devoured by him. Towards the poles, on the contrary, fish is almost exclusively the diet of the inhabitants; while in India, thousands never partake of animal food, but subsist almost entirely upon rice. The hunters who traverse the regions of the Upper Missouri and Columbia Rivers, often live, for months

AMERICAN INDIAN.

CAUCASIAN.

together, on the flesh of animals only. In these respects man stands alone; other animals being confined to particular localities. One class cannot bear the heat, another cannot endure the cold. Even with the advantages which human art can suggest, animals, when removed from their own locality, soon become diseased, and die. So again, in reference to food. To the carnivorous class of animals flesh is indispensable, as an article of food; ruminating animals, on the contrary, must be supplied with a vegetable diet, or perish.

Slowness of growth, and tardy development, further distinguish the human family. Man remains longer than other animals in a state of infancy and youth. The bones are slower in becoming complete; while it requires from fifteen to twenty years ere he attains his full stature. The length of life in man is proportionably greater than in other animals.

We will only remark in conclusion, that the human species may be divided into five varieties:—1. The Caucasian variety: distinguished by a white skin, with rosy tint, inclining to brown; hair, eye-brows, and eyes, of various colours; large skull, with small face; expanded forehead; nose somewhat aquiline; mouth small; front teeth perpendicular; lips turned out; chin full and rounded; moral feelings, and intellectual powers, most energetic. This variety includes all Europeans, except the Finns; the inhabitants of Western Asia, to the river Oby, the Caspian Sea, and the Ganges; the Tartars Proper; the tribes occupying the chain of Caucasus; the Georgians, Circassians, Mingrelians, and Armenians; the Turks, Persians, Arabians, Affghans, and Hindoos of high

castes; the northern Africans, Egyptians, and Abyssinians.

2. The Mongolian variety: characterized by an olive colour; black eyes and hair, with little beard; head of a square form; low forehead; broad flat face, and features running together; nose small and flat; round projecting cheeks; eyes very oblique; large ears; thick lips; and stature short. It includes the tribes of Central and Northern Asia, as the Mongols, &c.; the Manchoos and their neighbours; the Samoiedes, &c.; the Chinese and Japanese, with the inhabitants of Tibet, Tonquin, Ava, and Siam; the Laplanders and Esquimaux.

3. The Ethiopian variety: presents a black skin; eyes prominent and black; hair black and woolly; skull compressed sideways, and elongated in front; forehead low; cheek bones prominent; jaws projecting; teeth oblique; nose broad, thick, and flat; lips thick. All the natives of Africa, not included in the first variety, belong to this.

4. The American variety: here the skin is dark and red; hair black and straight; beard slender; a countenance and skull similar to the Mongolian; forehead low; eyes deep; face broad; mouth large; lips rather thick. This variety includes all the native Americans, except the Esquimaux.

5. The Malay variety: known by a tawny to a deep brown skin; hair long and black; head narrow; face large and prominent; nose full and broad; and mouth large. This variety comprises the inhabitants of the Malay Archipelago, New Holland, Tasmania, New Guinea, New Zealand, and all the islands of the South Seas.—Such is MAN!

THE MONGOLIAN.

THE LION

DIVISION I.—FELIS OR CATS.

THE LION.

In Hebrew, *Areé.*—(Felis Leo.)—In English, *The Tearer.*

"*He crouched as a Lion.*"—Gen. chap. xlix., 9.

If Man be the general lord of creation, the lion may be regarded as king amongst the brutes. He reigns in the forest, or in the plains, alone; taking the most prominent position from his immense size, herculean strength, and undaunted courage. A better acquaintance with his history, however, obliges us to make some drawbacks from the high eulogy which has been pronounced upon him. He is naturally sluggish; and it is only when roused by the influence of strong excitement, hunger, or revenge, that he puts forth his native energy, and innate ferocity. What authors have said of his generosity, may rather be referred to his cowardice and irresolution.

A mere glance at a lion is sufficient to convince us that he was made for aggressive war. The African lion, the noblest of his compeers, is from eight to nine feet in length, from five to six feet in height, and of about five hundred weight. His figure is noble; his looks determined; his gait stately; and his voice tremendous. His body, in short, is a perfect model of strength, combined with wondrous agility. His general muscular strength is expressed by his prodigious leaps and bounds, often to the extent of twenty feet at once; a single sweep of his tail being sufficient to throw a man to the ground; while a

blow from his paw will lay the smaller animals dead at his feet; the skull of a man has been broken by it. The general structure of the head of the lion is a masterpiece of art. The bones, though comparatively light, are strongly articulated together, and nearly covered with muscle. The jaws are very large. The lower jaw, which alone is moveable, presents a formidable apparatus, so contrived as to operate in the most efficient manner. Without going into anatomical detail, it may suffice to say, that the teeth and jaws of the lion, and other animals of a like order, operate like the antagonist blades of a pair of scissors upon the substance submitted to their cutting edges. The jaws of the lion are furnished with thirty teeth; six incisor, or cutting teeth, in each jaw: two canine, or dog teeth, also, in each jaw; eight molar, or grinding teeth, in the upper jaw, but six only in the lower. The canine teeth, the principal prehensile weapons of the head are, in the lion, of enormous size and length. The lower jaw is capable of motion only upward and downward, but not in a horizontal direction, so necessary for complete mastication. The lion, accordingly, in common with other carnivorous animals, can only cut and lacerate his food coarsely, transmitting it in large portions into the stomach. In the event of the meal being very sparing and bony, the tongue greatly assists in getting the flesh from the bones, being large and very rough. Neither is this peculiar to the lion, but common to all of the cat kind. The muscles of the neck are, moreover, particularly powerful, enabling the animal to carry away, or drag along, its prey, though of large size

THE LIONESS AND CUBS.

and weight. The head is adorned with a shaggy beautiful mane.

A passing remark must also be given on another part of the armour of this indomitable warrior. The fore-paws of the lion have each five toes, and the hinder-paws four toes, which are armed with very strong, hooked, and sharp claws, or talons, about an inch-and-a-quarter long, and well fitted to become a powerful instrument for seizing and rending the prey. The claws, a beautiful conformation, are always preserved, without effort, as in a sheath, from coming in contact with external bodies, so as to keep them sharp and ready for action. The talons thus protected, give the animal another advantage. The softer part of the paws being alone brought in contact with the ground, produces that noiseless tread, in making advances towards its prey, for which the whole of the cat tribe are so remarkably distinguished.

The Lioness is usually smaller, less bold, and more gentle than the male. She goes with young five months, and produces from two to four at a litter, which are born blind. In a state of nature both parents contribute to supply the whelps with food when they begin to eat, and mutually guard their young with the greatest jealousy. In these respects, however, the lioness takes the lead, becoming much more rapacious and terrible when she has young.

Of the strength of the lion most extraordinary and well attested examples are on record. To carry off a man appears to be a feat of no difficulty to this powerful brute. A Cape lion has been known to

seize, and carry off a heifer in his mouth, though the legs dragged upon the ground, conveying it with the same ease as a cat does a rat, leaping over a broad ditch with her, without the least difficulty. Another, and a young one too, conveyed a horse about a mile from the spot where he had killed it. Sparrman relates of a third, that having carried away a two-year old heifer, was followed on his track by horsemen for five hours, when it appeared that, throughout the whole distance, the carcass of the heifer had only once or twice touched the ground.

THE TIGER.

(Felis Tigris.)

Should a comparison be instituted between the lion and the tiger, we doubt whether the first rank would not be assigned to the latter. These animals are closely allied to each other in size, in power, in external form, in internal structure, in zoological character, in prowling habits, and in sanguinary propensities; yet the tiger is at once distinguished from the lion, and from every other of their common genus, by the peculiar markings of its coat. On a ground which exhibits, in different individuals, various shades of yellow, he is elegantly striped by a series of transverse black bands or bars, which occupy the sides of his head, neck, and body, and are

THE TIGER

continued upon his tail, in the form of rings, the last of the series uniformly occupying the extremity of that organ, and giving it a black tip of greater or less extent. The under parts of his body, and the inner sides of his legs, are almost entirely white; he has no mane; and his whole frame, though less elevated than that of the lion, is of a slenderer and more graceful make His head is also shorter, and more rounded. The dimensions of the tiger, when fully developed, are most formidable. Hyder Ali, it is said, presented one to the Nabob of Arcot, which measured, including the tail, eighteen feet in length. The average length may be stated at from nine to six feet, and the height from about four to three feet.

The tigress brings forth four or five cubs at a time. She is a very fond mother, braving every danger for them, and furiously attacking man or beast, in their defence. A proof of this is furnished by Captain Williamson. When in an Indian district, two of four tiger-cubs had been brought to him by some natives, which they had taken from their lair in the absence of the tigress. The two brought to the captain were put into a stable, where they made a loud noise for several nights. The bereaved mother at length arrived, replying to their cries with fearful howlings; and the cubs were let loose, under the apprehension that the infuriated tigress might break in. In the morning it was found that she had carried them both away.

The tiger seems to have had a less geographical distribution than the lion; and hence not so often mentioned by ancient writers. No notice is taken

of it in any part of the sacred volume. The tiger is to be found in the deserts which separate China from Siberia, and also as far as the banks of the Oby. In the south of China, and in the larger East Indian islands, as Sumatra, it is by no means uncommon. Pennant states, that it is found as far north as China, and Chinese Tartary, about Lake Aral, and the Altaic mountains. It inhabits Mount Ararat and Hyrcania, of old so famous for wild beasts. Hindoostan, however, may be considered the head-quarters of this destructive animal: there it is that the tiger reigns almost unawed. An animal so insidious, blood-thirsty, and malevolent, must always be a scourge in a locality where he may be found; but it is believed that he is comparatively innoxious to man, until after he has tasted human blood, when his visits to the abodes of the inhabitants become so frequent, and daring, that the whole district are compelled to go in search of him, to destroy him.

The bound with which the embushed tiger throws himself upon his prey is as wonderful in its extent, as it is terrible in its effects. Man is a mere puppet in his gripe; and the Indian buffalo is not only borne down by the ferocious beast, but carried off by his enormous strength. Instances may occur where he may slink away; but generally, he pursues the affrighted prey with a speedy activity, which is seldom exerted in vain. The swiftness imputed to the tiger, by ancient writers, has been confirmed by eye-witnesses in modern times, who assert that such is the vast fleetness of this animal, that a rider, mounted on a swift horse, would have been overtaken by a tiger in pursuit of him had he not

screened himself in time amidst a circle of armed men.

The following well attested, but sad story, too well confirms the truth of the preceding remarks. The son of Sir Hector Monro, accompanied by three of his friends, landed, December 22, 1792, on Sawgar Island, to shoot deer. They continued their sport till the afternoon, when they retired to the edge of a jungle to refresh themselves. They had not remained long before one of the party had risen, and was leaving to resume his sport. At that moment he saw a large tiger spring upon poor Monro, and rush with him into the jungle with the greatest ease, dragging him through everything that obstructed his course, as if all were made to yield to his amazing strength. His companions fired; and, after a moment's pause, the unfortunate gentleman came staggering towards them, covered with blood. His head was dreadfully torn, and his neck and shoulders fearfully lacerated; he had, moreover, received one of the musket balls, which had been aimed at the tiger. He lingered for twenty-four hours, in the greatest agonies, when, in spite of medical aid, he expired. A similar catastrophe befel Lieutenant M'Murdo in 1830. The party were engaged, near Jaulnah, in a tiger hunt, on foot, when the infuriated animal suddenly sprang upon the lieutenant, and carried him away. When his comrades last saw him alive, his left arm appeared thrust down the tiger's throat, his right arm having been shockingly mangled in his attempts to extricate himself.

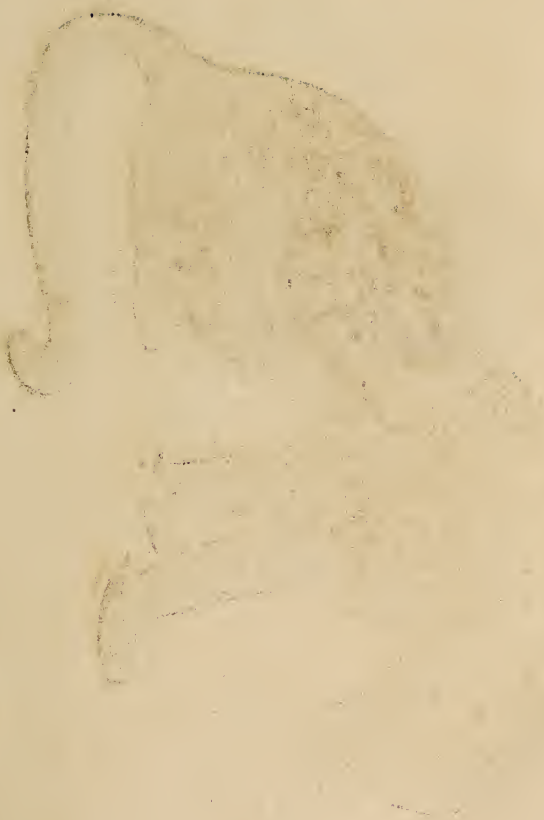
THE LEOPARD.

HEBREW, *Namar.*—(Felis Leopardu.)—ENGLISH, *The Spotted.*

"Can the Ethiopian change his skin, or the Leopard his spots?"

ALTHOUGH we are very familiar with the name of leopard, yet there are several species which so nearly resemble each other, that the precise distinction of the true leopard still remains a problem unresolved. Some of our modern and most experienced naturalists confess, that though the names of leopard and panther have long been known, yet that no writer of the last generation has pointed out, in what respects the animals differ. Major H. Smith, whose authority is undeniable, says, that the leopard, as compared with the jaguar and the panther, is uniformly of a paler yellowish colour, rather smaller, and the dots upon her skin rose-formed, or consisting of several dots partially united into a circular figure in some instances, and into a quadrangular, triangular, or other less determinate forms in others: there are also several single isolated black spots, which more especially occur on the outside of the limbs. If any reliance is to be placed on the most accurate figures hitherto published, the small spots of the leopard, and the large ones of the panther, must strike even a casual observer, and lead him to believe that the two animals should be called by different names. But in the absence of internal or anatomical difference, we may easily come to wrong conclusions, misled by those which are only external, and not strongly marked.

THE LEOPARD



From the frequent reference to leopards by the sacred writers, it is certain, that they were once located either in Palestine itself, or in the neighbouring countries; although they are no longer to be found there. In central Africa leopards are far from uncommon. They are found in considerable numbers in Lower Guinea, where they often make dreadful havoc among the flocks and heads. They are also to be found in India. In a state of nature they appear to be very active, climbing trees well, and taking their prey usually by surprise. Yet are they characterised as being swift-footed, according to the allusion made by the prophet Habakkuk, chap. i., 8, "their horses also are swifter than the leopards." In captivity they are said to be playful, but apt to be treacherous. Mrs. Bowditch won the heart of a leopard by kindness, presenting him with lavender-water in a tea-tray, of which the animal was fond almost to ecstasy. Sai, the name given to this favourite, was however taught, that he should never be indulged with this luxury, unless he put on his gloves, that is, kept his claws sheathed.

THE PANTHER.

(Felis Pardus.)

In size the panther ranges next to the tiger. Its hair is short and smooth; and is beautifully marked on the back, sides, and flanks, with black spots

forming a kind of rosettes; on the face, breast, and legs the spots are single: the colour of the body, on the neck and sides is yellow, but of a darker hue than in the leopard; the belly is white. Its ears are short and pointed; its eye restless; and its whole aspect fierce and determined.

The panther attacks alike all the smaller animals; and when pressed by hunger will dexterously climb up trees in pursuit of monkeys. It has the reputation of being an untameable animal; but we are not aware that it is more so than others of the same family. The ancients were no strangers to the panther; he being often brought into the arena by the Romans, to furnish sport in those cruel and dangerous games then so common.

This species is spread throughout Africa, in the warmer countries of Asia, and in the Indian Archipelago.

THE JAGUAR.

(Felis Onca.)

The Jaguar may easily be distinguished from others of the leopard tribe. It is robust in its form, being far stouter than the leopard, and very strongly built. The body is also thicker, the limbs shorter, and more fleshy, and the tail scarcely reaching the ground when the animal stands well on its feet. The head is larger, and rather shorter, than that of the leopard,

and the profile of the head more prominent. When full grown, the jaguar measures from four to five feet from its nose to the root of the tail. The spots on this animal are twice the size of those on the leopard, and those arranged along the upper surface, near the middle line of the back, are distinguished by one or two small black spots enclosed within their circle; the middle line itself being marked by one or two regular longitudinal lines of broad, elongated, deep black patches, sometimes extending several inches in length, and occasionally forming an almost continuous band from between the shoulders to the tail. The black rings towards the tip of the tail, are also completely circular.

The jaguar is unknown in the old continent, its localities being principally Paraguay and the Brazils; it is, however, to be found from nearly one end of South America to the other. One of these animals died in the gardens at the Regent's park, in 1832. From its general anatomical structure, it was concluded that it belonged to a tribe of animals of great energy and power, although not equal in ferocity or strength to the tigers of Bengal. This character has been fully confirmed by the testimony of eye-witnesses. D'Azara gives the following anecdote: a jaguar had struck down a horse; and orders had been given that the latter should be drawn within musket-shot of a tree, wherein the traveller intended to pass the night, in the expectation that the jaguar would return for his prey. While D'Azara was gone to prepare himself, the jaguar returned from the opposite side of a river, broad and deep, seized the horse in its mouth, drew it to the water, some sixty paces off,

swam across the river with it, landed it, and drew it into a wood close by. All this was witnessed by a person whom D'Azara had placed in concealment, to watch till his return.

Sonnini describes this animal as a most expert climber. He saw the scratches left by its claws, on the smooth bark of a lofty tree without branches, some forty feet high. He traced the marks of several slips made by the climber, but the animal had reached the top in safety. Humboldt says that he has heard the jaguar's yell from the tops of the trees, followed by the sharp, shrill, long whistle of the terrified monkeys, as they seemed to flee. Jaguars openly seize cattle, horses, and sheep, from the enclosures. Neither are they particular in their choice of diet; monkeys, birds, fish, or reptiles, being alike acceptable. The Indians often profit by the dextrous cunning of this animal, which is in the habit of seizing turtles as they come on shore, and turning them on their backs. The jaguar then insinuates his paw between the shells, and scoops out the contents as cleanly as if a butcher's knife had been employed. The beast often turning more than he can eat at one meal, the natives regale themselves with the residue. The number of these animals must be considerable, since two thousand of their skins are annually exported from Buenos Ayres alone.

Notwithstanding the strength and ferocity of the jaguar, instances are not common where he ventures to attack man. On the other hand, children themselves have sometimes escaped unhurt. A large jaguar, on one occasion, came out of the woods, and seeing two Indian children at a distance, one a girl

about seven years old, and the other a boy about nine, he bounded towards them, his head down, and his back arched, like a cat at play. He approached the boy, who was not sensible of his danger, and began to play with him, till at last, the jaguar struck him so hard on the head, with his paw, as to draw blood, whereupon the little girl struck him smartly with a small switch, and he was bounding back, not at all irritated, when the Indians, alarmed by the cries of the girl, came up.

THE CHETAH, OR HUNTING LEOPARD.

(Felis jubata.)

THE chetah, or hunting leopard, was supposed, by some of our older naturalists, to form a kind of connecting link between animals of the cat and the dog tribe. In the system of dentition, and in its general habits and peculiarities, it resembles the cat, while in intelligence, teachableness, and fidelity, it seems to approach nearer to the dog. Mr. Owen has demonstrated that a right place has been given to the chetah, in arranging it among the true leopards. It is an animal of great beauty and agility; and, generally speaking, obtains its prey during the day, rather than at night. Its colour is a bright yellowish fawn, in the upper parts of the body, covered above and on the sides with intensely black spots, closely

approximating to each other. The tail is likewise spotted, but the spots become more continuous as they approach its extremity, the three or four last rings surrounding it completely. The tip of the tail, the whole of its under surface, with the exception of the ringed part just mentioned, and the belly, are pure white. The outside of the ears are short and rounded, marked by a broad black spot at the base; the tip and inside of the ears a dingy white. The extremity of the nose is black. It has a mane, which is crisp and shaggy. Its fur likewise is coarse, much resembling hair. The chetah inhabits the greater part of Asia and Africa; being common in India, Sumatra, Persia, Senegal, and the neighbourhood of the Cape of Good Hope. We remember to have seen, about the beginning of the present century, three beautiful specimens of this animal in the Tower of London. They were found in the menagerie of the unfortunate Tippoo Saib, immediately after the capture of Seringapatam, and were presented, by Lord Harris, to George III. They did not long survive their arrival in this country. Another specimen was, at a more recent period, to be seen in the Zoological Gardens, Regent's Park. This survived for a considerable time, being fed chiefly upon lean mutton.

The habits of the chetah, when in a state of nature, are but little known; although its general mode of living, is believed not materially to differ from animals of the same class. In captivity it seems singularly amiable; delighting in being noticed or fondled, when it purrs like a cat. If uneasy or disappointed, its note consists of a short, uniform,

and repeated mew. It is very playful; but, unlike the cat, its play is not apt to degenerate into maliciousness or cruelty; its attachment being real and lasting. The chetah might, it is thought, be easily domesticated. The most remarkable trait in the character of the chetah, is the facility with which it is trained for the chase. The animals before referred to, as coming from Seringapatam, were said to have been great favourites with their owner, the Sultan of Mysore, who often fed and caressed them himself; and employed them in hunting. On these occasions they were led out by their keepers coupled two together, having the air and manners of a brace of greyhounds. They were hooded, and carried to the field, in cars made for the purpose. These cars were followed by the sultan and his suite on horseback. When the keepers, or huntsmen, came within view of a herd of antelopes, or other game, the chetah was unchained, and unhooded, and the game pointed out to him; being directed in his pursuit by sight. Stealing cautiously along, and taking every means of masking his attack, till he had approached the herd unseen, within a short distance, he then suddenly launched himself forward, with five or six vigorous bounds, instantaneously seizing his prey, and killing it. The huntsman, his attendant, now approached, caressing and enticing him from his prey, by placing the blood, which he had collected in a ladle, under his nose; or by throwing him pieces of meat. The animal being thus quieted, was again hooded, led back to the car, and chained. When the chetah fails in securing his prey, he attempts no pursuit.

THE PUMA.

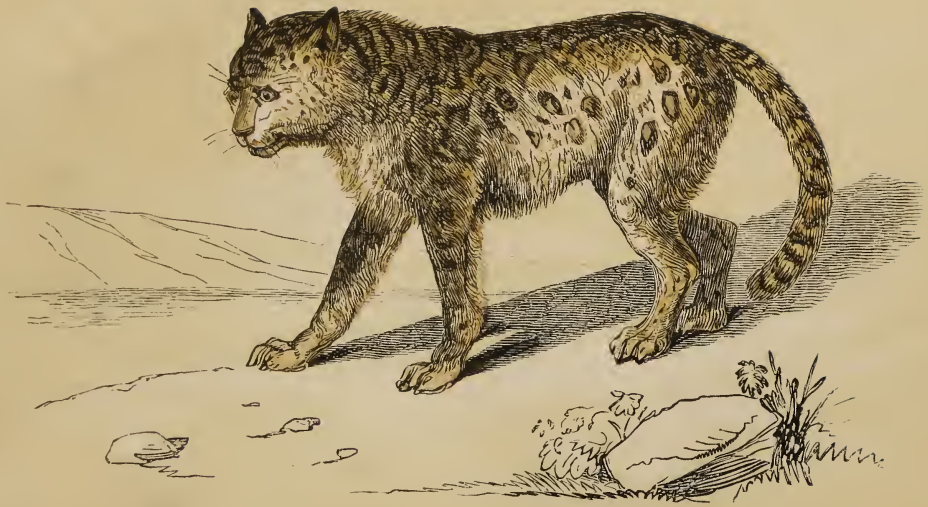
(Felis Concolor.)

Lions, properly so called, are confined to the old world; but from the size and ferocity of the puma, it is often designated the American lion, although, in fact, it more nearly resembles the leopard. Its colour is a silvery fawn, on the back and sides; the belly being nearly white. It has neither mane nor spots. The range which this animal formerly had, extended from Canada to Patagonia; this is daily becoming more contracted. It is still sometimes seen about the mouth of the Columbia River. In the Brazils it is far from uncommon.

The puma is always a dangerous and formidable neighbour. When it meets with a herd of cattle it will slay in all directions, sucking only a portion of blood from each victim. Fifty sheep have been killed by it in a single night. The settler knows, to his sorrow, that the puma is no less dangerous amongst his swine. It is an expert climber; although its principal haunts are swamps and prairies. The animal is said to be untameable; this, however, must be a mistake, since the late Mr. Edmund Kean kept one in his house, which was completely domesticated, following the inmates about the house with the familiarity of a dog.

It is a favourite sport, in South America, to hunt the puma with dogs. When the dogs are unkennelled, they pursue him until he stops to defend himself. If the dogs fly upon him, the hunter jumps from his horse and despatches him; but if

THE PUMA.



the dogs hesitate, and do not attack him boldly, the hunter throws his *lasso* over him, and galloping off, drags him along till the dogs tear him in pieces. At another time, the, dogs will drive him up a tree, when the rifle soon ends the conflict. It is, however, not very safe for a hunter to attack an infuriated puma alone. Many lamentable occurrences might be mentioned, in which the hunter has not escaped with his life; or without receiving some dreadful injury.

In common with other carnivorous animals, the female is more to be feared than the male, when she has young. At this season, she will obtain a supply of food for her cubs, at all hazards.

THE OUNCE.

(Felis Uncia.)

The ounce, though greatly resembling the panther, may yet be distinguished from it from the colour of the body, being a dirty white. It is also shorter, and more stoutly built, for its size, than the panther. The tail also is peculiar, being decidedly annulated with black rings, and not spotted. The specimens seen in England have been brought from India; but travellers believe that it is not common in any part of that extensive country. Whether it exists in other parts of Asia, or in Africa, we have no evi-

dence by which to determine. The specimen in the British Museum is remarkable for the thickness of its fur, the paleness of its colour, the irregular form of the spots, and the great length and thickness of the tail. Naturalists feel no hesitation in pronouncing the ounce as a distinct species. Although its habits are unknown, yet there is no reason to suppose that it essentially differs from other animals of its own order.

THE OCELOT.

(Felis Pardalis.)

The Ocelot is an animal of extreme beauty, its skin being most elegantly variegated, and its shape slender and compact. Its height is about two feet and-a-half, and its length about four feet. Its general colour is a bright tawny; a black stripe extends along the top of the back from head to tail; its forehead is spotted with black, as are also its legs; the shoulders, sides, and rump, being beautifully marbled with long stripes of black, forming oval figures, filled in the middle with small black spots; its tail is irregularly marked with large spots, and black at the end. The colours are less vivid in the female than the male.

It is a native of South America, living chiefly in the more mountainous districts of Brazil, concealing itself amongst the leaves of trees. The ocelot is an expert climber, often extending itself along the boughs, as if dead, when on the approach of the

curious monkey, or other smaller animal, it suddenly darts forward and secures its prey. Though very voracious and blood-thirsty, it is also timid, flying into the woods for concealment on the approach of dogs.

Nothing, it is said, can soften the naturally ferocious disposition of this animal, or calm the restlessness of its motions. This, however, must greatly depend upon circumstances. If captured after the age of puberty, it is to be expected that its innate savageness would be most apparent, not yielding to the caresses of its keeper; whereas, if born in captivity, or taken when quite young, educational kindness will do much to subjugate the fiercer propensities of its nature. Berwick relates that an ocelot shown at Newcastle, although extremely old, exhibited great marks of ferocity, growling even at its keeper, and appeared constantly restless from sheer ill-humour. Two ocelots, the same writer remarks, a male and a female, were brought into France some years ago, which had been taken when very young. At the age of three months they became so strong and fierce, as to kill a bitch which had been given them for a nurse. The male of these two was also very ungallant, satisfying his own hunger before he would allow the female to partake.

The ocelot may not be easily tamed, although the traveller D'Azara mentions one, which, from domestication, was so tame, as to be left at liberty, and never attempted to escape from its master, to whom it was fondly attached.

THE LYNX.

(Felis Lynx.)

Of all animals of the cat family, the lynx is one of the most singular. Its earlier history is enveloped in fable, the ancients having assigned to the lynx the charge of the chariot of Bacchus, in his triumphal career through India. The sight of this animal was also reported to have been so extraordinary, that it could penetrate the most opaque bodies; and that its urine became converted into precious stones. The truth is, that the ancients having no precise ideas of the animal assigned to Bacchus, employed the terms lynx, panther, and tiger, to it, almost indiscriminately: the lynx, although it cannot see through brick walls, has, probably, the longest sight of any quadruped known.

The lynx is thus described by the accurate Bewick: ears long and erect, tufted at the end with long black hairs; the hair on the body is long and soft, of a red ash colour, marked with dusky spots, which differ according to the age of the creature; sometimes the spots are scarcely visible: its legs and feet are very thick and strong; its tail short, and black at the extremity; its eyes of a pale yellow colour; and its aspect softer, and less ferocious than that of the panther or the ounce. This description, however, must be understood as applying to one particular species of the lynx tribe; viz. the caracal, or *black ear*, as the word literally means, and is a native of Persia, and the countries immediately adjacent. In truth, of all animals the lynx appears

to have been more widely distributed than any others, having had at one time the entire range of the Old World. It was formerly common in France and Germany; is still found in Spain; and numerously scattered over the more northern countries of Europe. It is found in most parts of Asia, throughout the whole of Africa, and in America, especially in the northern parts. This extensive distribution will account for the many varieties of this animal. Providence has kindly ordained that the skins of animals should change by climate and seasons, the fur becoming much finer, thicker, and warmer, in high latitudes, particularly during the winter. Man has reason to guide him in the choice and application of his clothing; while the God of nature is pleased himself to clothe the brutes. Wondrous and beneficent arrangement!

It is a singular fact, that the skin of the lynx has long been known as an article of commerce, although the wearers of it, the lynxes themselves, have been comparatively unknown to the naturalist. The Russians have carried on an extensive trade with the Chinese in the skins of the lynx. A single skin varies in value from about fifteen shillings to five or six pounds, exclusive of the fore-feet, which are also valuable, and sold separately. The Canadian lynx is found in such quantities by the fur-gatherers, that nine thousand skins have been imported in one year by the Hudson's Bay Company.

The habits of the lynx are rather gentle than savage, being less voracious than most of the cat kind, unless under excitement; offering little resistance when attacked, and being easily killed by a

blow on the back. In a state of nature it is very playful, walking, leaping, or bounding, like a cat. It feeds on the smaller animals, monkeys, squirrels, &c., pursuing them up trees, where also it will lie in wait to drop on deer or sheep, that may chance to pass beneath. Having seized its prey, it is said frequently to suck the blood, and then leave it for another victim: for this propensity the lynx has been charged, of all animals, with having the worst memory. In localities where lions are found, the lynx, like the jackall, is often in attendance, not to provide for the lion, but for himself, by sharing the spoil which the nobler animal may have left.

THE WILD CAT.

(Felis Catus.)

THE wild cat, like the last animal described, differs so much in different localities as to excite a doubt as to the family to which it belongs. In northern Europe there are red cats, at the Cape of Good Hope, blue, and in China and Japan cats are to be found with pendant ears; while in the British Isles, wild cats, now not very common, greatly resemble our domestic cats, and may in one word be called *tabby*. The hair of the wild cat is soft, fine, and long. It inhabits the more mountainous and woody parts of this island, living in trees, and hunting for birds, rabbits, hares, rats, mice, and other small animals. It not unfrequently makes great havoc among poultry, and will attack lambs, kids, and fawns. It

THE WILD CAT.

THE DOMESTIC CAT.

must be pronounced the fiercest and most destructive beast of prey in this kingdom. Shooting it even is sometimes dangerous; since, if slightly wounded, it will attack the person who has injured it, and is not easily repelled.

Some wild cats, says Bewick, have been taken in this kingdom of a most enormous size. We recollect one having been killed in the county of Cumberland, which measured from its nose to the end of its tail, upwards of five feet. This was something extraordinary, since the ordinary size of the wild cat little exceeds that of the tame kind.

The Angora cat presents a singular variety from the wild cat just described, having much longer hair, especially about the neck, where it forms a fine ruff, giving the animal a lion-like appearance. This species varies in colour; some being silvery white; others of a dun colour, mixed with yellow.

THE DOMESTIC CAT.

(Felis domestica.)

Naturalists have long been of opinion that our domestic cat is the same as the wild cat, only improved by its connection with man. Some modern writers, especially Mr. Bell, seem to doubt this. It is, however, a question which we must not stop to discuss. Unlike the wild cat of the British Isles, which is uniformly of one colour, the domestic cat is ever varying in shades and colours; white, black, black and white, tabby, and tortoise-shell, being alike

common. It is, we believe, a fact, that a male tortoise-shell cat is of very rare occurrence.

The eyes of the domestic cat, in common with those of the lion, are peculiarly constructed, giving the animal a great advantage in seizing its prey in the evening, or during the night; a season which most animals of the cat kind employ for procuring their food.

The pupil of the eye is so constructed, that it most readily contracts or dilates in proportion to the degree of light by which it is affected. This renders the vision of the cat obscure when in a strong light; but as evening approaches, the pupil dilates and perfect vision is enjoyed, of which the animal takes advantage by discovering and surprising its prey. For this distinctness of vision in twilight, the animal owes much to the lining of the *pigmentum* at the bottom of the eye, not being black, as in man, but parti-coloured. This adaptation of the sight to the circumstances and habits of the animal should not be overlooked.

The cry of the cat, whether indicative of anger or love, is singularly loud, piercing, and clamorous; and taking place, more generally by night than by day, and often in an elevated situation, as on the house-top, renders their nocturnal serenading, or catter-wauling, still more discordant and disagreeable to the disturbed listener. Cats are very prolific, bringing forth a progeny of five or six, twice or thrice in a year. The period of her gestation is fifty-five or fifty-six days. The cat is, generally speaking, a good mother; carefully guarding her young in any time of danger; or, if apprehensive of being disturbed,

will take up her kittens in her mouth, and remove them, one by one, to a more secure retreat. Her anxiety is exerted to protect her brood from the male, lest he should devour them, as he is sometimes inclined to do. Neither is the female herself, contrary to the established law of nature, which binds the parent to its offspring by an almost indissoluble tie, always exempted from this propensity, instances being by no means uncommon in which the unnatural mother has eaten her own young the moment after she has produced them.

The habits of cats are in many instances peculiar. They greatly dislike water, being averse even to wetting their feet: cold, damp, and bad smells, are alike repugnant to them. On the contrary, they are fond of certain perfumes: they are attracted, almost to phrensy, by the smell of valerian, marum, and cat-mint, rubbing themselves against these plants when growing in a garden, and if not prevented from coming at them, soon infallibly destroying them. Little can be said of the attachment of the cat to persons. There may be a partial recognition of the hand which feeds them expressed by the purr of gratitude; yet the next moment may witness the same hand being scratched by the capricious and spiteful inmate. The cat is strictly an *independent*, acting for itself alone, and setting, in all its movements, subjection completely at defiance. Towards places, it is exactly the reverse. Its views are centred to the place where it has been brought up, and if carried elsewhere, appears lost and bewildered. Under such circumstances neither attention nor caresses can reconcile it to its new quarters; and, if

possible, will escape to its old haunts. Frequent instances might be adduced of cats having returned to the place from whence they had been carried, though at many miles distant, and across rivers, when they could not possibly have had any previous knowledge of the road, or direction which would lead them to it.

Common as cats now are throughout Great Britain, it was not always so, being formerly scarce and dear. The story of Whittington and his cat may not, perhaps, be familiar to all our readers. The story runs thus: Whittington was foot-boy to a merchant in London; who being about to make an adventure by sea, was desirous that every member of his household should, according to their ability, do the same. Whittington, on being asked what he could send, replied, that he had nothing which he could offer but his cat, but that she was a good *mouser*. The merchant and his family smiled at the boy's simplicity, but the captain of the ship being present, agreed to take the mouser, and do the best with her which he could. On the return of the ship it appeared, that the captain had chanced to land in a country swarming with rats and mice. Whittington's favourite did such execution among the vermin, that the prince of the country agreed to buy the cat, and for a very large price. This unexpected good fortune furnished Whittington with the means of going into business; and ultimately he became a rich man. Three times he served the office of lord mayor during the reign of Henry V., by whom also, he was knighted. This may be a legend, or a story greatly embellished. Certain, however, it is, that Hoel, king

of Wales, who died in the year 948, thought it necessary, by law, to fix the price of different animals, among which the cat was included. The price of a kitten, before it could see, was fixed at one penny; till proof could be given of its having caught a mouse, two-pence; after which it was rated at four-pence, which was a great sum in those days, when the value of specie was extremely high; it was likewise required that the cat should be perfect in its senses of hearing and seeing; should be a good mouser; have its claws whole; and if a female, be a careful nurse; if it failed in any of these good qualities, the seller was to forfeit to the buyer a third part of its value. If any one should steal or kill the cat which guarded the king's granary, he was either to forfeit a milch ewe, her fleece, and lamb; or as much wheat as, when poured on the cat suspended by its tail, its head touching the floor, would form a heap high enough to cover the tip of the former.

It is remarkable that the cat should be nowhere mentioned in the Bible; although it is certain that it early became domesticated in Egypt, if not in Palestine also. Mummies of cats have been found in Thebes, and figures of them are sculptured on monuments devoted to the Pharaohs. It would be extraordinary if the Egyptians, who, in their high and palmy days, were the very centre of civilization, from whom all surrounding nations received their knowledge of the arts, and the refinements of social life, should not, among other benefits, have conferred upon the Jews their domestic favourite, and sacred idol—the cat.

DIVISION II.—CANES OR DOGS.

THE DOG.

IN HEBREW, *Kelev*.—IN ENGLISH, *The Keeper*.

"*But against any of the children of Israel shall not a dog move his tongue.*"—EXODUS, chap. xi., 7.

No language could more simply, or beautifully, express the security of the Israelites, on their departure from Egypt, than that employed in the passage of scripture above quoted—"against Israel shall not a dog move his tongue." We are not anxious to explain these words to the very letter; but the spirit of the passage clearly and strongly intimates how secure they are, whom God condescends to protect. Neither can we conceive how an original language, like the Hebrew, could more significantly designate the dog, than by appropriating to him the name of keeper. Whenever, or however, the dog may have lost his native liberty, and become the servant of man, we know not; but certain it is, that to no animal, not even to our fellow-man, can the appellation of keeper be applied, but to the dog only: he guards alike the person and the property of his master, by day and night, and under all circumstances, prosperous or adverse.

The dog, unlike animals of the cat kind, has no attachment to places, but in connexion with his owner. Where the master is, there the dog claims a home as a matter of right; and scarcely has he entered a house, though it may be perhaps for the

first time, than he assumes his office, barking at any noise he may hear, and showing marks of displeasure at the approach of any stranger, be he whom he may. Of all quadrupeds, the dog is the most intelligent, not merely capable of being taught, but anxious also to be instructed in anything, or everything, which may contribute to make him a better friend to man. Nature has endowed him with a large share of courage, and an angry and ferocious disposition—properties which, in a wild state, make him a formidable enemy. Yet these, by education, become so subdued, that he is seen in a prostrate crouching position at the feet of his master, willing to exert all his powers, whatever they may be, to his service, and waiting only the command, by word, look, or motion, to shew his implicit obedience.

A recent traveller in Africa gives the following interesting account of his dogs, in a rencontre with a lion. "The day," observes the traveller, "was exceedingly pleasant, and there was not a cloud to be seen. For a mile or two we travelled along the banks of the river, which, in this part, abounded in tall mat-rushes. The dogs seemed much to enjoy prowling about, and examining every bushy place, and at last met with some object among the rushes, which caused them to set up a most vehement and determined barking. We explored the spot with caution, as we suspected, from the peculiar tone of their barking, that there were lions. Having encouraged the dogs to drive them out, a task which they performed with great willingness, we had a full view of an enormous black-maned lion and lioness. The latter was seen only for a minute, as she made

her escape up the river, under the concealment of the rushes; but the lion came steadily forward, and stood still to look at us. At this moment we felt our situation not free from danger, as the animal seemed preparing to spring upon us, and we were standing on the bank, at a distance of only a few yards from him, most of us being on foot, and unarmed, without any possibility of escaping. I stood well upon my guard, holding my pistols in my hand, with my finger upon the trigger, and those who had muskets kept themselves prepared in the same manner. But at this instant, the dogs boldly flew in between us and the lion, and, surrounding him, kept him at bay, by their violent and resolute barking. The courage of those faithful animals was most admirable; they advanced up to the side of the huge beast, and stood making the greatest clamour in his face, without the least appearance of fear. The lion, conscious of his strength, remained unmoved at their noisy attempts, and kept his head turned towards us. At one moment, the dogs perceiving his eye thus engaged, had advanced close to his feet, and seemed as if they would actually seize hold of him; but they paid dearly for their imprudence, for without discomposing the majestic and steady attitude in which he stood fixed, he merely moved his paw, and, at the next instant, I beheld two lying dead. In doing this he made so little exertion, that it was scarcely perceptible by what means they had been killed." Ultimately the lion, although wounded, quietly retired!

Like his master, the dog is scattered all over the world. He is to be found amidst the snows of the polar regions, or traversing the arid ground between

the tropics; and, in both, without experiencing any very great difference by the extreme temperature of either. It is true, that if man by his foresight provides himself with dress adapted to the climate, that the God of nature has wisely arranged that the natural covering of the dog, in common with other animals, shall, in a high latitude, become warmer, thicker, and of a different colour; while, in a warmer climate, the reverse takes place, by the hair gradually becoming finer, and sleeker, so as to accommodate the dog to his change of locality. At first, some little inconvenience may be experienced; but ultimately he becomes used to the change, assuming the appearance of a native denizen of the soil! In his food, likewise, the dog is omnivorous. Flesh seems best adapted to his nature; but, in the absence of that, he can fatten upon vegetable fare—hard biscuits, with a little water, or upon what seems even less suited for food—upon greaves.

From the extensive geographical range which dogs possess, and from the numerous and adventitious changes to which they are subject, it is scarcely to be wondered at should the changes which they undergo be greater than even those of men, and their origin more difficult to trace, consequent upon the endless varieties which are found among them. Every dog-fancier seems to have it in his power, by crossing the breed, to produce whatever description of dog he may please. Still, amidst all these mutations and varieties, the identity of the dog ever remains the same; no doubt arising as to the family to which they belong. The bones of the body may be larger or smaller; the bones of the head thinner or

more obtuse, shewing a greater or less degree of sagacity; yet, the entire skeleton, or number of bones, and the manner of their articulation, are precisely the same in all, from the largest and noblest of the family, the old Irish greyhound, to the veriest and ugliest little cur, which you may meet in the streets; the caudal vertebræ, or bones of the tail, only excepted, which vary. The whole family is further distinguished by a similar dental formula. All dogs have forty-two teeth, twenty in the upper jaw, and twenty-two in the lower; of these, twelve in the upper jaw, and fourteen in the lower, are molar, or grinding teeth, giving the dog a great advantage over cats, in his power of mastication. These, we repeat, never change either their shape or number in any of the canine race whatever. It is also remarkable, that the term of the female's gestation is uniformly alike: she goes with young sixty-three days; then producing her progeny blind, in which state they remain for ten or twelve days. The bitch is a tender and careful nurse; yet such is her desire for progeny, combined with inexplicable stupidity, that she readily becomes the foster-mother to the young of other animals; kittens, rabbits, and even rats, becoming the objects of her maternity.

The dog is mentioned in holy scripture about forty times, but always dispraisingly. Of the truth of this, our readers will be convinced by turning, among many others, to the following passages: 1 Sam. xvii. 43; xxiv. 14; 2 Sam. ix. 8; 2 Kings, viii. 13. But for this several substantial reasons may be given. The Jews had been accustomed, in Egypt, to witness the profane worship of the dog, under the name of

Anubis, or the *barker*, having the body of a man with a dog's head. The capital of the Cynopolitan prefecture was Anubis, or the city of dogs, where priests celebrated festivals to the dog, with great pomp. This practice, no doubt, originated in the dog-star, Sirius, having, in remote antiquity, risen just as the river Nile began to rise, the star being regarded as the harbinger of that event, and which ultimately degenerated into the profane rites with which he was honoured. The dog was, also, by the law of Moses, declared to be unclean, and consequently could not become a domestic among the Jewish people. In the east, even to this day, dogs have never been properly domesticated, or treated well. They are found in almost every town, in great numbers, but prowl about at random, not belonging to any particular person, or attached to any particular place. They live in the streets and open places, upon offal, or any garbage which they may accidentally meet with. Their native savageness, therefore, continues; and in large towns especially, although, during the day, they do not offer any molestation to persons out of doors, yet, after nightfall, it becomes very hazardous to pass through the streets alone, which should not be attempted without being properly armed. In villages and encampments, the dogs know the inhabitants, and offer them no injury; but it is hazardous for strangers to approach such places, even by day. When the attempt has been made, travellers assure us, that the dogs afford every demonstration of a disposition to tear the intruder to pieces. These facts sufficiently account for the unfavourable character given of dogs in the bible.

THE MASTIFF.

(Canis Malossus.)

This dog is one of the largest and strongest of his kind. His aspect being grave and sullen; his bark loud and terrific, he seems every way formed for the important trust of a *keeper;* guarding and securing all property committed to his care. His examination of the premises he is to protect is careful, giving due notice, by his loud and frequent barkings, that he is ready to defend his charge. Three mastiffs are reckoned a match for a bear, and four for a lion.

Great Britain was noted, even in the time of the Roman emperors, for its breed of mastiffs. An officer was appointed to superintend the breeding of these dogs, which were afterwards sent to Rome, to assist in those sanguinary combats of the amphitheatre, then so common. By neglect, the mastiff, in a pure and unmixed state, is now seldom to be seen.

There is a generosity about large dogs which cannot but be greatly admired. Conscious of their superior strength, they often overlook injuries inflicted upon them by a smaller dog. Sometimes, however, they have given proof that the impertinence of an inferior must not always go unpunished. A mastiff, belonging to the late M. Ridley, Esq., of Heaton, near Newcastle, having been frequently molested by a mongrel, and teased by its continued barking, at last became so indignant, that he took up the offending cur in his mouth, by the skin of the back, and with great

composure dropped it over the quay, into the river, without doing any further injury to an enemy, in his estimation, so much his inferior.

THE BULL DOG.

(Canis Taurus.)

In olden times, England was notorious for the cruel sport of bull-baiting, and for a race of dogs peculiarly adapted for the practice. The practice itself was not merely encouraged, but enjoined by statute law, an act of parliament being then in force, and not yet repealed, that no bull should be slaughtered until after he had been baited. The better feelings of modern times, combined with a proper interference of the local magistracy, have suppressed this brutal sport, and, as one of the results, this particular breed of dogs has not been encouraged, and the pure bull-dog is now scarcely ever to be found. We must do him the justice to say, that of all the dog kind he was certainly the fiercest, and probably the most courageous animal in the world. It is, however, remarkable, that the true English bull-dog was always found greatly to degenerate on being removed from his own country, losing his courage, together with his native activity and strength. The bull-dog is but low in stature, although very strong and muscular. The nose is short; the under jaw projecting beyond the upper; and his general aspect fierce and forbidding. His implicit obedience to his owner

before the attack begins, is no less remarkable, than his courage in attacking the bull—his fury in seizing his victim—and his invincible obstinacy in maintaining his hold. In his attacks, he generally aims at the head or throat. In seizing an infuriated bull, the dog fastens either upon the lip, the tongue, the eye, or some part of the face; where he hangs, in spite of every effort of the bull to disengage himself.

The bull-dog should always be an object of fear to a stranger; since, making his attack without barking, or other notice, it becomes dangerous to approach him alone, without the greatest precaution.

The following fact is mentioned by Bewick, in his history of quadrupeds; but which could hardly be credited, if not related by an eye-witness. Some years ago, at a bull-baiting, in the north of England, a young man, confident of the courage of his dog, laid some trifling wager, that he would, at separate times, cut off all his four feet; and that, after every amputation, the dog would attack the bull. The cruel experiment was tried, and the poor animal continued to seize the bull as eagerly as though he had been perfectly whole. If the dog was a savage, what must the young man have been, to have made an experiment so frightful and inhuman!

THE GREYHOUND.

(Canis Graius.)

Nothing is more difficult than to trace the progeny of dogs. Buffon pretends that the common grey-

hound is the same as the Irish greyhound, rendered thinner, and more delicate, by difference of climate and culture. On this, we pretend not to decide.

Of all dogs, the greyhound is the swiftest, outrunning every animal of the chase. In consequence, it stands pre-eminently forward for coursing; but wanting the faculty of scent, and guided only by the eye, the run cannot be of long duration, since it either quickly overtakes and kills the object in pursuit, or on losing sight of the game, the affrighted animal escapes altogether from its perilous position.

The greyhound was formerly held in such estimation, that by the forest laws of King Canute, no person under the rank of a gentleman, was permitted to keep one of these dogs.

Our readers may be amused, by the following quaint, but accurate description of the greyhound:—

"Headed lyke a snake,
Neckyed lyke a drake;
Footted lyke a catte,
Taylled lyke a ratte;
Syded lyke a breme,
And chyned lyke a beme."

Many distinguished individuals in modern times have paid much attention to the breed of greyhounds, and have had some of the best dogs ever seen. The names of Czarina, Jupiter, Claret, Snowball, the Miller, Schoolboy, Major, and others, will long be familiar to sportsmen, as greyhounds of pure blood, and of admirable powers in the chase. Greyhounds are accounted at their prime when two years old, and to begin to *run cunning* at five or six.

THE BLOOD-HOUND.

(Canis sanguineus.)

"Soon the sagacious brute, his curling tail
Flourish'd in air low bending, plies around
His busy nose, the steamin ; vapour snuffs
Inquisitive, nor leaves one turf untried.
Till, conscious of the recent stains, his heart
Beats quick; his snuffling nose, his active tail,
Attest his joy: then with deep-op'ning mouth,
That makes the welkin tren ble, he proclaims
Th' audacious felon: foot by foot he marks
His winding way, while all the list'ning crowd
Applaud his reas'nings: o'er the watr'y ford,
Dry sandy heaths, and stony barren hills:
O'er beaten paths, with men and beasts distain'd,
Unerring, he pursues, till at the cot
Arriv'd, and seizing by his guilty throat
The caitiff vile, redeems the captive prey:
So exquisitely delicate his sense!"

THUS sang the poet Somerville, than which nothing can be more true. The blood-hound, of all dogs, appears the most extraordinary. Unlike the grey-hound, just described, it places no dependence on its sight, but on its exquisite scent. Blood, scent, and the smell of persons, attract the special attention of this unerring hunter. It was formerly employed, not merely for pursuing game, but persons also.

The true blood-hound stands rather more than two feet in height, being muscular, compact, and strong: the forehead is broad, and the face narrow towards the nose; the nostrils are wide, and well developed; the ears large, pendulous, and broad at the base; the aspect, far from savage or forbidding,

is serene and sagacious; the tail is long, with an upward curve when in pursuit, at which time the voice is deep and sonorous.

This singular animal may be pronounced the *policeman* of his times; engaged, not merely in tracing steps of "moss-troopers, children of the mist, and adventurers;" or, in other words, robbers; but in the pursuit likewise of men — even such men as Bruce, and Wallace. Barbour, an old Scottish bard, recounts King Bruce's escapes from such pursuits; and the wily turns whereby he threw the hound off his scent. The king hesitated not, on one occasion, to wade a bow-shot length down a brook, and to climb a tree, which overhung the water. Of Wallace, it is also related, that after a short skirmish at Blackerne side, in which he was worsted, the English followed up the retreat, which he was forced to make, attended only by sixteen men, with a border blood-hound. Nothing but the spilling of blood, it is said, will stop the hound in its career. Wallace, at this time, had been joined by Rawdon, a somewhat suspicious character, and who, during the retreat, for some cause, real or feigned, refused to proceed any farther; at which Wallace became so exasperated, that, after repeated remonstrances, he struck off his head. When the English came up, they found the hound standing over the dead body; Wallace having, in the meantime, effected his escape.

These dogs were trained when young, with infinite care. A young dog, accompanied by a stanch old hound, was led to a spot from whence a deer, or other animal, had been dragged for a mile or two:

the hounds were then laid on and encouraged, and after following this *drag* successfully, were rewarded with a portion of the venison which they had scented. The next step, was to take the young dog, with his seasoned tutor, to a spot whence a man, whose shoes had been rubbed with the blood of a deer, had started on a circuit of two or three miles; during his progress, the man renewed the blood, from time to time, to keep the scent well alive. The circuit was gradually enlarged, at each successive lesson, until the young hound became, at last, fully equal to hunt by himself, either for the purpose of taking the game, or tracking the poacher to his retreat.

Only about a century ago, when deer-stealing was a common crime, the park-keepers relied upon their blood-hounds principally for detecting the thief; and so adroit were these dogs, that when one of them was fairly laid on, the escape of the criminal was considered to be all but impossible. Even now the breed is not extinct; some experiments having been made with them, within the last few weeks, and with complete success. The time may return, when the English blood-hound will once more assist the justice's warrant, and the policeman's search.

About the end of the last century, a number of negroes, at Jamaica, having revolted from their merciless owners, took refuge in the mountains, from whence, by ordinary warfare, they could not easily be dislodged. In 1795, the Christian barbarians of that island, came to the frightful resolution, in their House of Assembly, to employ blood-hounds, for the extirpation of the blacks. Dr. Paley's principle, maintained in his Moral Philosophy, being thought

sufficient to justify the act, viz., that if the cause and end of war be justifiable, all the means necessary to that end are justifiable also. Accordingly, a commissioner was sent to the Havanna, who returned to Montego Bay, on the 14th of December, 1795, with forty Spanish hunters, and about a hundred Cuban blood-hounds, nearly resembling the English breed. Terror was everywhere spread on the arrival of these new allies; the streets being cleared, the doors shut, and not a negro venturing to stir out. Even General Walpole, the governor of the island, narrowly escaped with his life; for the dogs being brought on parade, and maddened by the shout of attack, were with difficulty stopped before they reached the general, who found it necessary to seek shelter in his carriage, from which he had just alighted; and unless the most strenuous exertions had been made by the hunters, his horses would to a certainty have been seized by the ferocious dogs. On the 14th of January, the expedition advanced, having the dogs in the rear. "It is pleasing to observe," says Mr. Bryan Edwards, "that not a drop of blood was spilt after the dogs arrived in the island." We hope it was so; although we greatly doubt the fact. The report of the dogs having reached the oppressed Maroons, the name by which the malcontent negroes were known, they sued for mercy; and two hundred and sixty of them surrendered, on a promise that their lives should be spared.

A still more frightful account of the blood-hound is recorded in the history of the island of Hayti, or St. Domingo. At the peace of 1802, France had stipulated with England, that the republic of Hayti

should be subjugated. Accordingly Napoleon Bonaparte, then chief Consul of France, sent a large force to Hayti for this purpose; but under the specious pretext of liberty, and fraternity. The Haytians, however, were better judges of Napoleon's politics, than to be thus gulled, and having already proclaimed their independence, they determined to maintain it. A system of warfare ensued, in which no quarter was given. The cruel aggressions of the French were responded to by the fearful *lex talionis*, or life for life. Amongst other expedients resorted to by General Leclerc was that of hunting the people down by blood-hounds. The dogs having been trained to tear a man of colour to pieces, wherever he could be found, many a sad work of destruction was hereby committed. The same horrid system was continued by Rochambeau, who had succeeded to the command, after Leclerc's death. But the native black troops becoming, almost everywhere, successful, Rochambeau, and his sickly, desolated army, were at length shut up in the fortified town of Port-au-Prince. In the mean time, war having recommenced between England and France, a fleet was sent to blockade the ports of Hayti. In this distressed situation the sufferings of the French army became so extreme that they were compelled by famine to slaughter for food the very dogs with which they had hunted the negroes; and on whose flesh the blood-hounds had literally been fed. Ultimately, the famished Frenchmen surrendered to the English as prisoners of war. In 1825, France acknowledged the independence of the island. The righteous retribution of the Almighty was in this case so apparent,

THE TERRIER.

that it forms an excellent comment upon the words of the Psalmist, "So that a man shall say, Verily he is a God that judgeth in the earth." Psalm lviii. 2.

THE TERRIER.

(Canis familiaris Terrarius.)

For the name of this useful dog we are indebted to the French, the word *terrier* signifying *burrow;* and is appropriately given to this class of dogs, for their willingness to enter any burrow, after what is technically called, *vermin,* from the fox to the rat. He is not very large, but having an acute smell, and being hardy, keen, and fierce, he thinks well of himself, like most other little people; being ever ready to fight it out, regardless of consequences.

It is acknowledged that there are two kinds of terriers, one rough, short-legged, long-backed, very strong, and generally of a black or yellowish colour, mixed with white; the other, smooth, sleek, beautifully formed, shorter in the body, more sprightly, but less hardy and courageous; the colour being either a reddish-brown, or black. The pepper and mustard breeds, before referred to, are highly valued. Dogs employed for badger-baiting are crossed with the bull-dog. Of this crossed breed was the celebrated dog Billy, famous for his destruction of rats, killing sometimes in a room, a hundred of these animals in six or seven minutes.

Every pack of hounds, it is said, should be accompanied by a brace of terriers, and any colour for such

is better than red, least they should be mistaken for foxes.

The following curious account is taken from Daniel's *Rural Sports*. After a very severe run of more than an hour, the fox took to earth at Heney Dovehouse, near Sudbury. The terriers were lost; but as the fox went to ground in view of the headmost hounds, it was resolved to dig for him. Two terriers were brought for the purpose; and after considerable labour, the hunted fox was got out, and given to the hounds. While this was doing, one of the terriers, a bitch, slipt back into the earth, and again laid; after more digging, a bitch-fox was taken out. The terrier had killed two cubs in the earth, but three others were saved from her fury. These, when taken home, were committed to the care of the bitch terrier, although she had a whelp of her own nearly five weeks old, and the cubs could just see, when this exchange of progeny took place. The bitch, notwithstanding, well performed the office of step-mother, suckling the cubs regularly, and rearing them, until they were able to shift for themselves.

THE FOX-HOUND.

(Canis Venaticus.)

Every class of dogs appears to be characterized by some peculiar excellency; that of the English fox-hound for its lightness, combined with strength, courage, speed, and activity. We say the English fox-hound, because, from the attachment shown to

THE LURCHER AND FOXHOUND.

the chase in England, it is not much to be wondered at, should our hunting-dogs excel those of any country in the world. Whether this superiority depends upon our climate being congenial to their nature, or from the great attention paid to their breeding, education, and maintenance, we pretend not to determine. The varied causes may possibly combine to produce the result; certain it is, that when this particular breed of dogs has been sent only into France, they have quickly degenerated, and lost, in a great degreee, those qualifications for which they were so much admired. A well-trained pack of fox-hounds is of considerable value; that of the late Mr. Noel, having been sold to Sir William Lowther, Bart. for a thousand guineas.

No better proof of the wonderful spirit of these dogs in supporting a continuity of exertion can be given than the following well-attested, but touching narrative. A large stag was turned out of Whinfield Park, in the county of Westmoreland, and pursued by the hounds till, by fatigue or accident, the whole pack was thrown out, excepting two stanch and favourite dogs, which continued the chase the greater part of the day. The stag returned to the park from whence he had set out; and as his last effort, leaped the wall of the park, and expired as soon as he had accomplished it. One of the hounds pursued to the wall, but being unable to get over it, laid down, and almost immediately died; the other was also found dead at a short distance. The length of the chase was computed at not being less than *a hundred and twenty miles.*

THE NEWFOUNDLAND DOG.

Few animals will bear comparison with the magnificent dog which we are now to describe. In him seems to centre the sagacity of a human being, the strength of a lion, with the meekness and quietness of a lamb. He may sometimes, like his masters, be put out of temper, but generally, he is a model of patient endurance, faithful attachment, and untiring effort. He derives his name from the country whence he was brought; and where he has long distinguished himself as the friend and servant of the settlers on those unpropitious shores. He is there chiefly employed in bringing down wood from the interior: three or four of these dogs, yoked to a sledge, will draw two or three hundred weight of wood piled upon it, for several miles, and that with the greatest ease. They are attended by no driver, or any person to guide them; but after having delivered their loading, they return immediately to the woods for a farther supply; where also they are accustomed to be fed with dried fish, or other coarse fare.

The gigantic dimensions of the Newfoundland dog are about as follow: from the nose to the end of the tail the length is something more than six feet; the length of the tail nearly two feet; girth behind the shoulders, more than three feet; round the head over the ears, two feet. He is web-footed, and therefore well adapted for swimming: he is also a dexterous diver, bringing anything up from the bottom of the water. Contrary to most dogs, he

THE NEWFOUNDLAND DOG.

is a great amateur of fish, and which he readily eats raw.

These dogs, from their extraordinary sagacity, strength, and attachment to their masters, render themselves highly valuable under peculiar circumstances. During a severe storm, in the winter of 1789, a ship belonging to Newcastle was lost near Yarmouth, and a Newfoundland dog alone escaped to shore, bringing in his mouth the captain's pocket-book. He landed amidst a number of people, several of whom endeavoured, but in vain, to take the pocket-book from him. The sagacious animal, as if sensible of the importance of the charge, which in all probability was delivered to him by his perishing master, at length leaped fawningly against the breast of a man, who had attracted his notice among the crowd, and delivered the book to him. The dog immediately returned to the place where he had landed, and watched with great attention for everything which came from the wrecked vessel, seizing them, and endeavouring to bring them to land.

Many other well-accredited stories might be added of the Newfoundland dog, but our limits forbid enlargement.

THE LURCHER.

The Lurcher may almost be regarded as the king of marauders, being one, as his name signifies, who watches to steal. In size he is less than the greyhound, but stronger; and his body is covered with a

rough coat of hair, most commonly of a pale yellow colour. He has an advantage over the greyhound, in possessing a fine scent, which makes him an admirable assistant to a poacher. Indeed, so useful was this dog, that an old practitioner in the trade of poaching has been heard to boast, that with the aid of a couple of these dogs he could procure, in the course of a single night, as many rabbits as he could carry. The lurcher's habits are dark and cunning. When taken to a rabbit-warren, he steals out with the utmost precaution, watching and scenting the rabbits while they are feeding, and darts upon them without barking or making the least noise. The marauder is beside so well trained, that he never fails bringing the booty so procured to his master, who waits in some convenient place to receive it. Their skill in these illicit practices became so notorious, that they are now proscribed, and the breed has become almost extinct.

THE MACKENZIE RIVER DOG.

Visitors to the Zoological Gardens, Regent's Park, may have noticed the dog of which we are now to give a description. Coming from North America, he is but little known in this country, or his peculiar habits inquired into. He bears considerable resemblance to the fox of his native regions, being of slender make, the muzzle long, with upright pointed ears. The hair is long and fine, and like most animals of a cold climate, his winter coat is much thicker

ESQUIMAUX DOG AND MACKENZIE RIVER DOG.

and whiter than that of summer. His manners though gentle, are yet somewhat wild; there appearing some difficulty in making this dog thoroughly domesticated. On one occasion, when a little more liberty was allowed him at the gardens than usual, he ran away; and his pursuers experienced considerable difficulty in retaking him, and returning him safely to the garden, being in fact almost as wild as a fox.

THE ESQUIMAUX DOG.

The Esquimaux are a race of people inhabiting the most northerly parts of the American continent; and in a singularly desolate and dreary country, owe the few comforts which they possess mainly to the assistance of a hardy, wild, and fierce race of dogs, which are called by their own name. How the inhabitants of a country covered with snow throughout the whole year, can subsist at all, or their dogs either, is almost inexplicable. Yet such is the fact. Captain Parry, in his second voyage for the discovery of a north-west passage, supplies us with many interesting details relative both to the people and the dogs. These animals are described as being subjected to a constant dependence upon their task-masters, whom they assist in the chase, in carrying heavy burdens, or dragging heavy sledges over the trackless snows of their dreary plains; and, for these services, they receive a very scanty supply of the coarsest food, together with an abundance of ill-usage. A number

of them together will perform journeys of sixty miles in a day, dragging five or six persons, at the rate of seven or eight miles an hour. The Esquimaux dog often grumbles, but never rebels; his endurance never tires, and his fidelity is such, that no blows or starvation can shake it. To the women the dogs are more particularly obedient, from the kindness with which they treat them, nursing them when sick or disabled. This attention gains for the women their affections; and by whom they can at any time be caught, and yoked to the sledges. The sufferings of the severest hunger produce in them no change, although they are ever ready to turn out of their way, should they chance to espy any filthy garbage during their laborious journeys.

Though, on being harnessed, remarks Captain Parry, they appear huddled together, there is, in fact, considerable attention paid to their arrangement, particularly in the selection of a dog of peculiar spirit and sagacity, who is allowed, by a longer trace, to precede the rest as leader, and to whom, in turning to the right or left, the driver usually addresses himself. This choice is without regard to age or sex, the dogs taking precedence according to their abilities, the least effective being the *wheeler*. The *leader* is usually about twenty feet from the fore part of the sledge, and the hindmost about half that distance; so that when ten or twelve are running together, several are nearly abreast of each other. The driver sits quite low in the front of the sledge, with his feet overhanging the snow on one side, and having in his hand a whip with a wooden handle, about eighteen inches long, with a flexible lash

of about as many feet in length. The driver, by practice, acquires considerable tact in using this instrument, either to assist in guiding the dogs, or inflicting on either of them a very severe blow at pleasure. With a good leader, even in the darkest night, and in the heaviest snow-drift, there is little or no danger of their losing the road, the leader keeping his nose near the ground, and directing the rest with wonderful sagacity.

Without the assistance of these dogs, the wants of the inhabitants of these inhospitable climes could hardly be supplied. Such is their exquisite scent, and undaunted courage in the chase, that scenting a rein-deer, even at the distance of a quarter of a mile, they will gallop off furiously in the direction of the scent; and the animal is soon within reach of the unerring arrow of the hunter. They will discover a seal-hole entirely by the scent, and at a very great distance. Their desire to attack the ferocious bear is said to be so great, that the word *nenhook*, or bear, is often used to encourage them when running in a sledge; two or three dogs, led forward by a man, will fasten upon the largest bear without hesitation. Although the sufferings of these poor animals during the winter, from sheer hunger, is truly pitiable; yet such is their sagacity, Captain Parry assures us, that during the winter they will not drink water unless it be oily, knowing that their cravings would but be increased by such an indulgence: they lick the clean snow as a substitute, which produces a less contraction of the stomach than water. The Esquimaux dog never barks, but howls like the wolf. Well or ill-fed he is always very quarrelsome.

THE DOG OF ST. BERNARD.

The last dog which we propose noticing, is that of Great St. Bernard, a convent situated on the top of a mountain known by that name, near one of the most dangerous passes of the Alps, between Switzerland and Savoy. In these regions, the traveller is often overtaken by a sudden storm, which renders the roads impassable by drifts of snow and *avalanches;* huge loosened masses of snow or ice being swept into the valleys, carrying trees, and crags of rocks before them. The monks of this convent then open their hospitable doors for the reception of the weary or benighted traveller. They devote themselves to the dangerous task of searching for those unfortunate persons who may have been overtaken by the pitiless storm In these truly christian offices, they are assisted by a breed of noble dogs, brought up in the establishment, and trained to exert their extraordinary sagacity and strength for the rescue of the endangered traveller, who, benumbed with cold, falls into a deep sleep, which, if not speedily relieved, inevitably proves the sleep of death. It is then that the keen scent, and the exquisite docility of these admirable dogs, are called into action. Though the perishing man lie ten, or even twenty, feet beneath the snow, the delicacy of smell with which they can trace him offers a chance of escape. Scratching away the snow with their feet, and setting up a continual hoarse bark, the monks and labourers of the convent are hereby aroused to their assistance. To provide for the chance that the dogs, without farther help, may

ST. BERNARD DOG.

succeed in discovering an unfortunate traveller, one dog has a small bottle of spirits swung about his neck, and another a cloak. Even where a rescue is unsuccessful, the dogs will bring home any corpse which they may find, and which is often preserved for a considerable time at the convent, that it may be recognised by the bereaved family and friends. One of these noble creatures, before the year 1816, was seen by many a visitor to the convent, bearing a medal on his breast, commemorating the fact that he had saved the lives of twenty-two persons. In that year, however, like many other devoted missionaries, this extraordinary dog fell a martyr to his work, in attempting to convey a poor courier to his anxiously expectant family. The monks remonstrated, for some time, against the expedition, on account of the state of the weather; but at length furnishing the courier with two guides, each of whom was accompanied by a dog, of which one was the remarkable animal before-mentioned, the party set out. The family of the unfortunate man had also left their home in search of him. In an instant, two *avalanches* overwhelmed both parties, who all perished.

Our engraving is a faithful portrait of one of these dogs, with a child on his back. A woman, travelling with her young son, had been destroyed by an *avalanche;* when the child being found unhurt by one of the St. Bernard dogs, the sagacious animal induced the poor boy to mount upon his back, and thus carried him in safety to the gate of the convent.

THE WOLF.

In Heb. *Zeaiv.*—(Canis Lupus.)—In Eng. *The Affrighter.*

"*Her princes in the midst thereof are like* WOLVES *ravening the prey, to shed blood, and to destroy souls, to get dishonest gain.*"—Ezek. chap. xxii., 27.

Wolves form a very large family, being distributed nearly over the whole world; and though found of various colours, as brown, dusky, and black, yet are essentially the same. The common European wolf is of a fulvous grey, and which, though not now to be found in Great Britain in a wild state, may be seen in almost every collection of wild animals in the kingdom; and is, therefore, familiar to our readers. Formerly, the wolf, far from being uncommon, was to be found, in considerable numbers, in the wild tracts and deep forests of ancient Britain. In the reign of King Athelstane (A. D. 925), it was found necessary to build a retreat at Flixton, in Yorkshire, to save travellers from being devoured by these marauders. Edgar, his successor, applied himself to their extirpation, by commuting the punishment due to convicted felons on the delivery of a certain number of wolves' tongues. The Welsh, likewise, had their taxes remitted for an annual tribute of three hundred wolves. But their extirpation not being completed, Edward the First issued a mandamus, to bailiffs and others, to render assistance to his faithful and beloved Peter Corbet, whom the king had enjoined to take and destroy wolves. In Ireland, wolves were to be found as late as the year 1710.

The scent of the wolf is equal to that of any hound; this, combined with his native ferocity and courage, make him a good hunter; the size and speed of the elk or the stag, being no protection against the speed and cunning of the wolf. He is naturally a solitary animal, loving a stand-up fight, single-handed; but in case of need, he will unite with his compeers; when, having seized and devoured their prey, they instantly disperse. In inhabited countries, the wolf is too prudent to show himself during the day, which he passes in sleep; but, on the approach of night, the sheep-cotes and farm-yards are liable to his sanguinary visitation. Such is his cunning and agility, that though the faithful dogs may give early notice of his approach, the daring thief will carry away his prey, almost before the eyes of the robbed farmer. If very hard pressed by hunger, and all meaner victims fail, he does not hesitate to prowl into a village, carry off the defenceless children, or even fall upon the unarmed cottager himself.

The wolf is several times mentioned in the sacred writings, and everywhere as opposed specially against sheep and goats, intimating that his cruelty was equal to his courage, since his attacks were always directed against the innocent and unprotected.

THE NEW SOUTH WALES WOLF.

The animal now to be mentioned is but a variety of the common wolf: it has been ranked with the dogs;

but from its wild and savage nature it is believed to be a true wolf. It neither barks nor growls; but shews displeasure by the erection of the hair over the whole body, like bristles, combined with furious looks. It feeds principally on rabbits and poultry; having an aversion to dressed meat.

One of these wolves, which had been brought to this country, was extremely active and fierce, seizing on any animal within its reach. If not restrained it would run down deer and sheep. On one occasion an ass had nearly fallen a victim to the fury of this wild creature.

It is rather less than the common wolf; its ears being short and erect, and its tail long and brushy: the general colour is a pale brown, the belly and inside of the legs being nearly white.

THE FOX.

In Heb. *Shual.*—(Canis Vulpes.)—In Eng. *The Burrower.*

"*Take us the* foxes, *the little foxes, that spoil the vines; for our vines have tender grapes.*"—Can. ii., 15.

We will not detain our readers, by inquiring whether the Hebrew word *shual* may not mean the jackal as well as the fox. Perhaps it may; but the term *burrower* so exactly suits the known habits of the fox in all countries, that we cannot be wrong in believing that the fox of the sacred writings, nearly resembles the animal bearing that name in our own country, and so well known, as to require no very minute description.

The fox is a great sleeper by day, though extremely

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active and cunning at night. Flesh of any kind the fox can eat; but he prefers that of hares, rabbits, poultry, and birds. In the absence of other food, foxes near the coast, will eat crabs, shrimps, muscles, and other shell-fish. He also exerts considerable cunning in securing his prey. His first object on entering a hen-house is to kill as many as he can; when, having made a meal to repletion, he carefully brings out the remainder, one by one, depositing them in different holes, which he digs for the purpose; on the return of hunger he repairs to these stores for a fresh supply of food; an experiment, however, which often hazards his personal safety, since the farmer, knowing his habits, watches for his return, and destroys him.

In wine districts, the fox is a most unwelcome guest, not merely from the quantity of grapes which he devours, and of which he is extremely fond; but for the mischief which he does in tearing down, and destroying the vines. This bold marauder makes no hesitation in attacking the hives of wild bees: the whole swarm will fly out and fasten upon the invader; but retiring for a minute or two, and ridding himself of the bees by rolling upon the ground, he returns to the charge, devouring both the wax and the honey.

But *renard's* principal fame, and even existence, depends upon the chase. Foxes, long ere this, would have been as scarce as wolves, had not the sportsman afforded them his protection. In many localities where hounds are kept, the farmers are bribed by the neighbouring gentry, to protect the foxes, the occasional depredations committed by them upon the farmer, being liberally paid for, by their patrons.

The fox also, being very prolific, and by the means just mentioned, a supply of foxes may always be procured.

The instant a fox finds himself pursued, he flies towards his hole for a retreat; but that being stopped, which is always carefully done before the chase begins, he has recourse to speed and cunning for safety. He does not double and measure his ground back like the hare, but continues his course straight forward before the hounds, with great strength and perseverance. The scent of the fox being very strong, the dogs can follow him with great alacrity and ease, and have kept up the chase for eight or ten hours together. It is hard to determine in such a contest, whether most to admire the spirited eagerness of the hounds, the ardour of the horses, or the undaunted perseverance of the fox. The latter, indeed, is the only one of the party which has the doctrine of necessity on his side; but even here, free-will seems to operate so strongly, that the wily fox often escapes the utmost efforts of his pursuers, and returns exhausted but triumphant to his hole in safety. The smell of his urine is so offensive to the dogs, that it sometimes proves a means of escape. When all his shifts have failed, and he is at last overtaken, poor *renard* then defends himself with great obstinacy, and fights the uncqual battle, in silence, till torn to pieces by the dogs.

Dogs and horses not unfrequently fall victims to the ardour of the chase, which has sometimes continued for upwards of fifty miles without the smallest intermission, the horses being the whole time almost at full speed. The noted old fox *Cæsar*, was some

THE ARCTIC FOX.

years ago started near Hurworth, in the county of Durham, and made an extraordinary chase of more than fifty miles. Mr. Turner, the owner of the dogs, having tired three horses, only three hounds being in pursuit, and it being nearly five in the evening, the dogs were called off, and master *Cæsar* quietly retired without saying—*I have conquered!*

Besides the fox just described, there are two other varieties—the greyhound fox, which is much larger, and the cur fox, which is the most common, but the least; they differ from each other, more in form than in colour.

THE ARCTIC FOX.

(Canis Lapogus.)

This singular animal inhabits the coldest parts of Europe, Asia, and North America. When the frost will permit, it makes holes in the ground, several feet in length, where it forms a nest of moss: two or three foxes inhabit the same burrow. Where the climate is so severe that it cannot burrow, the animal contents itself with living in the clefts of the rocks. The hair of the Arctic fox is of an ash colour, which nature kindly changes to a white, during the winter; the hair being then long, soft, and somewhat woolly; its toes are covered with fur on the under part; its tail is more bushy than the common fox; its ears are short and almost hid in the fur; it is also smaller and more slender than the European fox. Its skin, so useful and well adapted to the original wearer, is but of little value to a second owner.

The Arctic fox is not wanting in cunning, which it exerts in taking geese, ducks, and other water-fowl, before they are able to fly. Hares, wild birds, and eggs, form another part of its diet; but in the absence of these, it feeds on berries, and shell-fish. In Lapland, and the north of Asia, where at a particular season immense numbers of marmots are to be found, the foxes make them their principal food, following them in their migrations from place to place, and continuing absent from their usual locality, in search of their favourite prey, for three or four years together.

THE JACKAL.

(Canis Aureus.)

The jackal scarcely needs to be described, since every visitor of the Zoological gardens remembers to have seen this animal. It much resembles the fox, though it is larger; in colour it inclines to a yellowish grey, in the upper part of the body, and nearly white below; the ears are ruddy; the nose very pointed. The jackal possesses a wide geographical range over India, the greater part of Asia, and Africa. It continues to be an inhabitant of Palestine, although not mentioned, at least, by its English name, in the Sacred writings.

Its habits are far more gregarious than those of the fox, hunting in packs; when they often attack the larger quadrupeds; but the smaller animals, and poultry, are their more frequent prey. They keep

THE JACKAL.

themselves in their burrows during the day, which they leave at night-fall, making a shrieking low cry. Travellers have remarked, that their cry, when first heard, is singularly appalling, since it usually begins with a shriek from an individual, which is instantly responded to by the whole pack, in full chorus. The effect of this discordant music is greatly increased when the first cry is heard in the distance, by the response, from several points at once, and those within a few feet of the place where the traveller may be sleeping. It has been noticed as a singular fact, that the odour from this animal, when in a wild state, is most offensive; while in a domesticated jackal, it is scarcely perceptible.

THE HYÆNA.

(Canis Hyæna.)

So many absurd stories are told of this animal by Pliny, and other of the earlier naturalists, from their ignorance of it, that it is only very lately that its true history has come to light. It is certainly a fierce carnivorous animal; but though having an extensive geographical range, being found in Asia, northern and central Africa, the mountains of Caucasus, the Altaic chain, Asiatic Turkey, Syria, Persia, Barbary, Senegal, and the Cape of Good Hope, yet was it almost unknown to the Romans, and by no means a frequent visitor to this country. These remarks refer chiefly to the striped hyæna; the locality of the spotted hyæna being far more limited,

and our acquaintance with it even less than with the other.

The striped hyæna is of a brownish-grey colour, darker above than below, the sides marked by several blackish bands or stripes. The front of the neck, muzzle, and outside of the ears, are black. The hair is very long and rough, particularly on the neck and spine, where it forms a full thick mane. The general appearance of the creature is rather disgusting than pleasing. Yet to its keepers, and those with whom it is acquainted, it is by no means surly; on the contrary, the animal appears fond of being noticed, is inclined to be playful, and when the gambol is over, makes a subdued moaning, the obvious result of disappointment.

In its dental formula it much differs from the dog, having only thirty-four teeth, which are conical, blunt, and large; the jaws also being covered with very powerful muscles, the animal possesses immense power in breaking and crushing the hardest bones. The shin-bone of an ox being given to a hyæna, he began to bite off large pieces from its upper extremity, swallowing them whole. On reaching the medullary cavity, the bone split into angular fragments, many of which he likewise swallowed entire. He went on cracking it till he had extracted all the marrow. Three shin-bones of a sheep were successively given to the same animal, which he snapped asunder in a moment, dividing each into two parts only, which he swallowed entire, without the slightest mastication. The tongue of the hyæna is very rough; the feet have four toes each;—living mostly in caverns.

The strength of this animal, and power of dragging away large bodies, are noticed by travellers. Colonel Denham relates, that at Houka, in Africa, the hyænas were so numerous and daring, that a large village, which he was accustomed to visit, had been attacked the night before his last visit, though defended by a prickly fence eight feet high, and two donkeys carried off in spite of the efforts of the people. We constantly heard them, continues the colonel, close to the walls of our town at night, and on a gate being left partly open, they would enter, and carry off any unfortunate animal that they could find in the streets. The same traveller assures us, that the cemeteries of the country are carefully guarded, especially after a funeral, or these midnight prowlers would tear open the graves, and carry away the newly interred corpses.

THE SPOTTED HYÆNA.

(Hyæna Maculata.)

This animal, formerly numerous near the Cape of Good Hope, is described as cruel, mischievous, and formidable. The huts of the Hottentots were once boldly entered by this marauder, and their children carried away; but since the natives have become acquainted with fire arms, wild beasts have been kept at a greater distance from the habitations of mankind. Still the hyæna hovers about the shambles near the Cape, ready to take away any offal which it may chance to find.

THE BROWN BEAR.

In Heb. *Dov.*—(Ursus caudâ abruptâ).—In Eng. *The Growler.*

"*I will meet them as a* Bear *that is bereaved of her whelps, and will rend the caul of their heart.*"—Hos. chap. xiii., 8.

Bears stand at the head of a numerous family of carnivorous animals, distinguished by the name of *plantigrades,* from their walking on the entire sole of the foot, which has five toes, armed with strong claws, but not retractile. Their teeth, like those of the dog, are forty-two in number, and similarly arranged, giving them considerable powers of mastication. The bear is ranked amongst carnivorous animals, and will eat flesh if pressed by necessity, although it greatly prefers a vegetable diet, soft roots, fruits, and honey. In the colder climates bears lay themselves up in caves or hollows for the winter, passing the time in a drowsy state; the lady-bear taking advantage of this leisure for producing her young.

The brown bear (see our engraving) is better known than others of the same family, being widely spread over Europe, particularly in the more northern part; and also in the northern districts of Asia and Africa. The bear is an unoffending and solitary animal; not fond of broils, unless in self-defence. It is very hardy, can endure great and long privations, and is long-lived; many of them having been known to survive in captivity for half a century. It is beside an excellent swimmer, an expert climber,

THE BROWN BEAR.

and a tolerable dancer: in learning the latter art, it is to be feared that poor *bruin* has been subjected to great barbarity from his inhuman teachers. Bear-dancing has, very properly of late years, been discouraged, if not suppressed.

Great Britain, there can be no doubt, was formerly a domicile for bears; and in Wales they ranked amongst the beasts of chase. Bear-baiting was common in the days of Shakspere, a regular bear-garden being maintained in Southwark, which disputed popularity with the Globe and Swan theatres, on the same side of the water, where our great bard himself, just mentioned, used to perform. Queen Elizabeth was entertained with a bear-bait, when she paid a visit of state to Kenilworth Castle.

The usual size of the brown bear is about four feet in length, and about two feet and a half in height. The gambols of the bears kept in the Zoological gardens near London, will repay our young friends on visiting these places.

The references made in Scripture to the bear are in connexion with the care which the she-bear takes of her young, and her infuriated conduct when her cubs are in danger. The female bear spending but little of her time with the male, devotes her whole attention to the care of her cubs, which she plentifully supplies with food, without regard to any personal hazard to which she may expose herself. When she apprehends an attack from other animals during the night, she will lead her infant progeny up a tree, where they may rest in the thicker branches, under the ever-watchful eye of the mother. The first allusion made in Scripture to this disposition of the

bear is, 2 Sam. xvii. 8, "They be mighty men, and they be chafed in their minds, as a bear robbed of her whelps in the field:" the second, Prov. xvii. 12, "Let a bear robbed of her whelps meet a man, rather than a fool in his folly:" the last reference is the text placed at the head of this article. A touching story related in Lord Mulgrave's voyage for the discovery of a north-west passage, will illustrate this fact. A female bear and her cubs were approaching the ship when the sailors fired, which killed the cubs, and wounded the mother. Regardless of her own sufferings and danger, she scorned to withdraw, and leave her young behind. She would not understand that they were dead; she placed food before them, and by every endearing motion endeavoured to raise them with her paws; she withdrew, and looked back, as expecting them to follow; but perceiving that they lay motionless, she returned, and with inexpressible fondness walked round them, pawing them, licking their wounds, and moaning bitterly the while. "It would," says the narrator, "have drawn tears of compassion from the eyes of any but those who possessed hearts of adamant, to observe the affectionate concern of this poor beast." At last, as if receiving the unwilling conviction that her young were dead indeed, she turned towards the ship, and uttered a fierce and bitter growl against the murderers, which they answered by a volley of shot that laid her dead beside her young. So fine a trait in the character of the bear might well be noticed by the sacred writers. It is said that the attachment between the dam and her young is reciprocal.

THE POLAR BEAR.

THE POLAR BEAR.

(Ursus maritimus.)

This extraordinary variety among bears, deserves notice on every account. It inhabits the dreary regions which surround the North Pole, chilled by eternal frost, and clad with perpetual snow. This species is of greater length than the others; the head elongated; the ears and mouth small, and the neck long and thick. His furred coat is silvery white, tinged with yellow; the hair on the back being short, while the legs and belly are inclined to be woolly. The sole of the foot, besides being very large, exhibits a beautiful instance of adaptation of means to an end, being covered almost entirely with long hair, affording the animal a firm footing on the ice. The claws are black, but not much curved. See our engraving.

The polar bear is necessarily carnivorous. Animals of the land and sea, birds and their eggs, the dead and the living being alike devoured. He is an admirable swimmer and diver, readily catching a large salmon beneath the water, and bringing it to land. The method by which the bear hunts the seal is peculiar. On seeing his intended prey he gets quietly into the water, and swims until to leeward of it, from whence, by frequent short dives he silently makes his approaches, and so arranges his distance, that at the last dive he comes to the spot where the seal is lying. If the animal attempt to escape by rolling into the water, it falls into the bear's clutches; if it lie still, its destroyer makes a

powerful spring, kills it on the ice, and devours it at leisure.

The water is doubtless the peculiar element of the polar bear, in which he can swim to very long distances. He has been seen swimming about midway between the north and south shores of Barrow's straits, which are forty miles apart; neither was there any ice in sight, to which he could resort for rest. On land he is not quite so expert; but when at full speed, in a kind of shuffle, will go as quickly as a horse in sharp gallop.

THE RACOON.

(Ursus lotor.)

The racoon appears to be the connecting link between the bear and the coati mondi, an animal presently to be mentioned. It possesses the strength and clumsiness of the one, combined with the playfulness and timidity of the other. Unlike the bear, this creature in running does not bring the sole of the foot in complete contact with the ground, which is the case when in an erect posture. It readily stands upon the hind feet, having the power of grasping with the fore-feet; not however, by contracting the paw, but by putting them both together. In this manner the animal conveys its food to its mouth, having first plunged it in water. The racoon passes the day in sleep, bent into a ball, a strong light being painful to it; but at night it evinces much activity in seeking its food, which in a state of

THE RACOON.

nature, consists of insects, fruits, and roots. The climbing powers of this animal are considerable, running up trees with great facility in pursuit of birds, or for the purpose of plundering their nests.

The head of the racoon is broad at the top, tapering down nearly to a triangular shape; the legs are slender. In colour it is of a blackish-grey; the tail long and bushy, alternately marked with light and dark rings. The face is nearly white, with a white band encircling the eyes, and descending on each side toward the jaw; the upper lip has long and thick mustachios; the feet are covered with short hair.

Of the habits of this quadruped not a great deal is known. Its geographical range is considerable, being found in high northern latitudes in America; it is also to be met with far south, being well known in Paraguay. The racoon is believed to be a great lover of shell-fish. When in quest of them, it will station itself near a swamp, where, deliberately hanging its tail over into the water, which the crabs mistake for food, and laying hold of it, are suddenly jerked up, and removed out of the water. The cunning animal instantly seizes them, but from behind, least their nippers should catch hold of the fisher.

In captivity the racoon is extremely docile, courting caresses, and susceptible of attachment. Perhaps this creature may be ranked with many others, which, while in captivity accommodate themselves to their circumstances, acquiring new habits, without forgetting that "mountain nymph," so dear to us all, "sweet liberty.'

The Coati-Mondi, (*Nasua*), in its habits appears

to be nearly allied to the animal just described, and is a native of South America. Two varieties have reached this country, the brown and the red; but since they differ only in colour, Cuvier believes that they form but one species. They are gregarious, and though living in the woods, often do much mischief in sugar plantations. Their food consists of fruits, insects, and reptiles; climbing trees in pursuit of their prey, with surprising agility. In descending trees, unlike most other animals, they come down head foremost, hooking to the tree with their hinder claws.

Their size is about that of a fox, the tail being nearly as long as their body, which they generally carry almost erect, placing it between their legs when they sleep, and which serves them for a bed. The muzzle of this creature is its striking characteristic, being at once long, flexible, and in perpetual motion when under excitement. It uses the snout in searching for worms, of which it is very fond: the fore paws are employed for the same purpose. Its voice is shrill and piercing.

In confinement the coati-mondi becomes very tame, taking food from the hand, or putting its long snout into the pockets of its attendant in search of biscuit, or other favourite substance. Its ordinary food is bread and milk. In drinking it laps like a dog. It is accustomed when meat is given it, not to divide it with the teeth, but the claws.

The Suricate, (*Ryzena tetradactyla*), is another curious animal to be seen at the Zoological gardens, and which deserves a passing notice. Its appearance greatly resembles the polecat, though it seems

THE BADGER.

to stand higher on its legs, and not crouching down when it runs. Its smell being acute, serves chiefly to guide it in searching for food, which consists of the smaller animals, birds, and eggs; or if provender runs low, it will readily partake of ripe fruits and soft vegetables. Like most of the ferret family, its sight is but imperfect, especially by day. The colour of the suricate is a dull brown, inclining to fawn underneath, and crossed by slight bands on the back.

This animal is a native of Southern Africa. It is readily domesticated, forming an attachment to a place, like the cat, and which it very reluctantly leaves. It is believed to be susceptible of affection in a high degree towards those that feed and treat it kindly; but, on the contrary, when once offended, it neither forgives nor forgets, but watches for an opportunity of revenge. Its prepossessions also are peculiar, the kindest treatment from some persons producing no impression whatever upon the wayward suricate.

THE BADGER.

(Ursus meles.)

"*And rams' skins dyed red, and* BADGERS' *skins.*"—EXOD. chap. xxv., 5.

"*And shod thee with* BADGERS' *skin.*"—EZEK. chap. xvi., 10.

THE Hebrew word used in the Bible in the above passages and rendered badger is TACHASH; but will our readers forgive us if we confess our ignorance of the meaning of this word. We could quote the renderings of the Septuagint and the Vulgate, with

the opinions of Aben-Ezra, Bochart, Michaelis, Clarke, Dathe, Rosenmuller, and Gussetius, could we hereby come to any satisfactory conclusion; yet we incline to the opinion of the last-mentioned critic, who in his *Commentarii Hebreæ Linguæ* maintains, that the word cannot mean the badger, because that animal being accounted unclean by the Mosaic law, could not be used for sacred purposes; but it refers to some animal now entirely unknown to us. The word occurs seven times in the Old Testament, though always in connexion with the word skin or skins.

The badger, though honoured with a place in the Bible, is but an insignificant animal, a compound of the bear, the genet, and the hog. It must be ranked with carnivorous animals, although from the arrangement of the teeth its powers of masticating hard vegetable substances, as roots, &c., is considerable; and the snout being so long gives it great power in biting as a means of defence. Its feet also are peculiar, having five toes on the hinder, as well as on the fore-feet, armed with long and sharp claws, which are of great assistance in burrowing. It possesses also so much muscular power in the fore-legs, that when only half-burrowed, it has retained its position with such tenacity as to resist the effort of two strong men pulling at the tail to draw the animal out. The legs, though short, are very muscular; the body broad and compact; the ears small; and the tail short. Under the tail is an aperture of considerable size, from which exudes a greasy substance, so extremely fetid, that the whole tribe have obtained the name of *mephites* or stinkards.

Although the badger is widely distributed over all the northern parts of Europe and Asia, it is everywhere rather a scarce animal. There is a variety of the badger to be found in North America, and another in India. Its food consists chiefly of roots, fruits, insects, and frogs, though it is also fond of eggs, young partridges, or the young of other birds which build on the ground. Like the fox it is a honey-lover, and a honey-stealer, the shaggy coat in which it is dressed, protecting it in a great measure from the stings of the robbed bees. Badgers are extremely solitary in their habits, scarcely ever being found with the females of their own species. They keep very much in their burrows during the day, which are often made of considerable extent, and lined with hay or other dry and warm materials. These animals, though themselves so disagreeable in smell, are particularly cleanly in their burrows, no odour of any kind being permitted to remain there. If by any chance any other animal defile their abode, the regular occupant has often been known in consequence to abandon the locality altogether. A singular anomaly exists in the colours of the badger-kind. Most other animals are dark-coloured on the back and upper parts of the body, and lighter beneath; the colour of the head and back of the badger, on the contrary, is nearly white, and darker below.

It was formerly a common practice to bait this animal, technically called *drawing the badger*. The poor creature being put into a narrow box in which there was no room to turn, terrier dogs were sent in to drag it out by the snout. This after the dogs

had received several severe bites, was at length most generally effected. This cruel sport, we believe, is now not much more frequently to be met with than the badger itself.

The Glutton (*Mustela Gulo*) next to be described, very nearly resembles the badger, although by many it is thought rather to belong to the genus of the coati. It is one of those animals which is still but imperfectly known. A specimen may be seen in the Zoological gardens, which was brought, we believe, from South America; and of some district of that country it is thought to be a native. It has the appearance of a strongly built animal; and in captivity, at least, appears playful and gentle, though very irascible and voracious. Knowing its native *habitat* so imperfectly we are not likely to know much of its original habits.

To the foregoing animals may be added the Ratel, *Mellivora-Capensis,* a pretty specimen of which adorns the gardens in the Regent's Park. The hair of this curious animal is smooth, but stiff and wiry; the body, from the top of the head to the root of the tail, a dull ash-grey, whitest towards the head, but so raised above the skin, that the animal seems as if wrapped up in a mantle; the other parts of the body are jet-black. Its bulk is about that of the badger.

The ratel was formerly supposed to belong exclusively to Africa; but since our better acquaintance with India, the animal has been found there, scarcely differing at all from that of Africa. The specimen now in the gardens was a native of Bengal, although sent from Madras.

THE GLUTTON.

THE RATEL

Like many other animals it is a great lover of honey. Sparrman, the well-known African traveller, informs us, that the bees of that country usually inhabit the deserted lairs and burrows of the porcupine, and other animals, which are discovered by the ratel, under the guidance of the honey-guide cuckoo, which serves as a conductor to the bees' stores. Should the hive be found in, or on the ground, the cunning animal will undermine it, by digging with its natural instruments, its claws, and thus secures the booty; but should the bees' nest be found in a tree, the ratel not being much of a climber, can do little more than scratch the bark with its claws, an indication so well known by the Hottentot hunter that he secures the treasure. Still the formation of the ratel's jaws and teeth, and its general strong and muscular frame, would rather lead us to suspect that his habitual food must be of a different nature than honey, to require such physical strength and powers of mastication which the ratel possesses.

In India, the ratel is thought to be strictly carnivorous; sleeping during the day, but prowling out at night, to feed upon flesh in any state, or upon birds and rats; even scratching up the newly-buried dead bodies, unless the graves are well protected by a covering of thorns. So well will this animal burrow, that it can work itself under cover, in the hardest ground, in the course of ten minutes. The natives often take them alive by digging; the old ones, however, seldom survive long, becoming sullen in captivity: the young become playful and docile. These animals make a kind of coarse call or barking.

The manners of the ratel, kept in the gardens of

the Regent's Park, are pronounced to be most playful and good-tempered; soliciting the attention of almost every visitor, and throwing itself into antic postures. But towards animals it is the very reverse, watching the motions of smaller mammals which may chance to pass its cage, and producing in them an instinctive dread on passing. The food of the ratel, in captivity, consists, in the morning, of bread and milk, in the evening, of flesh.

THE CIVET.

(Viverra civetta.)

We now approach a class of animals differing from others by a peculiarity of structure for exuding a strongly scented, but grateful substance of a musky character; although not to be confounded with a substance usually designated by that name. For what purpose this extraordinary excretion has been provided, as regards the animal itself, no certain opinion can be formed; its utility to man as an article of profitable commerce, is too apparent to require any explanation. The apparatus given for the formation of this scent are certain glands in the posterior part of the animal which deposit their produce in two pouches, situated near the tail. This secretion is found both in male and female; but especially in the former. In captivity, when the animal is well fed, and in lively health, about a dram of musk per week, may be extracted from the pouches, and which is done by means of a spoon. In consistence the musk

or civet, resembles pomatum; but of a very dark colour. Its aroma is so great, that every portion of the creature's body, internally and externally, is embued with it; and substances once coming in contact with it, always retain the scent, provided the musk itself be pure. The civet is a native of northern Africa, though the musk coming from that country is not so much approved as that from Holland, where it is procured from civets, in a comparatively domesticated state, and exported in a purer state, than that coming from Africa.

The body of the civet is much elongated, being nearly a yard in length; the tail about half the length of the body. The hair of the body is brownish grey, and long, with numerous transverse black bands. The hair of the neck and back is longer than elsewhere, and can be raised or depressed at pleasure. The legs and the greater part of the tail are black; the eyes are likewise surrounded with black. Its appearance altogether is rather prepossessing.

The general habits of the civet resemble those of the fox and the cat. Like them it makes its predatory visits by night, surprising birds, and the smaller quadrupeds during their slumbers. In captivity, it becomes comparatively tame, but is never much to be trusted. Education may do a little more for those that are young, than for those which are older. It is remarkable, that civets have never been known to breed in confinement. It is also too curious a fact to be omitted, that the males and females so greatly resemble each other, that no difference of sex can be perceived but by dissection.

The Zibet (*Viverra zibetha*), so nearly resembles its congener just described, that a very short notice will suffice. It is a native of Java, and the Malayan Archipelago. When taken young, it becomes sufficiently gentle to be entrusted as the *mouser* of the house, receiving for its services the leavings of the family, whether consisting of animal or vegetable food. In its native wilds it burrows, making a nest somewhat like the squirrel's; sleeping by day, watching by night. Its visits to the hen-roosts are most destructive; its depredations in coffee plantations being often extensive; eating much, and destroying more. Like the civet, it has never been known to breed in captivity.

THE ICHNEUMON.

(Viverra Ichneumon.)

Egypt is in every respect the country of wonders. The remoteness of its history; its connection with the early stories of the Bible; its fame as the cradle of the arts; the remnants still remaining of fallen greatness, in temples, palaces, cemeteries, and pyramids; its geographical position, climate, and animals, all combine in giving a peculiar interest to Egypt. This country, for ages shut up with all it contained, against the approach of Europeans, but now thrown open, throughout its length and breadth, to the tread and investigation of modern travellers. Napoleon Bonaparte, that adventurous prince of

wizards, first gave the key of Egypt to Great Britain, by transferring the quarrels of the west into this country, making the arid plains of Egypt the battle-field of convulsed Europe; and thus unwittingly laying open stores of learning in almost every department. Egypt now, far from being unknown, has again become, after the lapse of centuries, the highway to the East, offering accommodation of every description for the numerous travellers who come to, or pass through it.

The ICHNEUMON, an animal now to be described, suggested the paragraph just above written, but the correct history of which has but recently come to light. The ichneumon, a native of Egypt, that land of fable, and located as it is, on the banks of the Nile, it is no marvel if its own history has been enwrapped in mystery; stories being told of it too marvellous to be credible. Still, that it is an extraordinary creature we pretend not to deny; and one, singularly important for the locality in which it is found. In a land of crocodiles and serpents, a crocodile-hunter and a snake-catcher can but be an acquisition: such, in short, is the ichneumon.

Although the ichneumon has long ceased to be numbered among the deities of Egypt, it still retains a rank among useful animals. In size it is about as large as a cat; the body somewhat longer, and the legs short. Its general appearance and habits are those of the weasel; having small, but inflamed eyes, a long and slender nose, small round ears, with a tail, thick at the base, and tapering to a point; the feet armed with long claws. Whether wild or domesticated, it is always fierce, and cruel in the

pursuit of its prey, which it darts upon with the quickness of an arrow, seizing it with inevitable certainty. It is provided with excretory glands in the posterior parts of the body, from which a most fœtid humour exudes. Its voice is soft and feeble, which it seldom raises, unless it be attacked or irritated. It sleeps soundly, having first folded itself up like a ball. Not unfrequently it will sit up like a squirrel, catching anything with its fore feet that may be thrown to it.

These animals are numerous in all the southern regions of Asia, from Egypt to the island of Java; they are also found in Africa, and as far south as the Cape of Good Hope. They are seldom seen very far from a river, the banks of which seem to be a favourite residence. It will take the water like an otter, diving with great dexterity, and remaining beneath the surface of the water for a considerable time. It ever evinces an appetite for carnage, and a propensity for aggressive war. Without the slightest indication of fear, it will attack the most deadly serpent, seizing its victim at the neck, and killing and eating it with the greatest avidity. It is moreover, a declared foe to every noxious reptile of the torrid zone, making unceasing war upon them. It has long been known to be the most formidable enemy of the crocodile; not, according to ancient tradition, by entering the mouths of these frightful reptiles, creeping down their throats, or gnawing a passage out through their sides; but by watching their movements, digging their eggs from the sand, and destroying numbers of the newly-hatched crocodiles, before they can reach the water. Crocodiles

of late years, are seldom found within the delta of the Nile; but as these river monsters have receded, the ichneumons have followed close in their steps, making both crocodiles and ichneumons comparatively rare, in northern Egypt.

In a state of captivity, the ichneumon becomes, under ordinary circumstances, perfectly tame and gentle. M. d'Obsonville, who resided for some time in Egypt, brought up an ichneumon from a very early age, feeding it on milk and vegetables. It became very tame, being obedient to the call of its master, following him about wherever he went. It seemed quite to possess an altered nature from those of its own kind, when its owner, desirous of knowing how far its instinct would carry it, against a creature with which it was hitherto quite unacquainted, brought home, one day, a small water-serpent, alive. Its first emotions were those of astonishment, mixed with anger; its hair becoming erect. After a moment's pause, slipping behind the reptile, with wonderful swiftness and agility, it leaped upon its head, seized it, and crushed it with its teeth. This first essay seemed to awake its natural appetite for blood, which till now had given way to the gentleness of its education. The poultry, with which the ichneumon had been brought up, were no longer suffered to pass unregarded, the young *dragonet* taking the first opportunity, when alone, of strangling them, eating part of the flesh of some, and drinking the blood of others.

This animal, from the long sojourn of the Jews in Egypt, must have been known to them, although its name no where occurs in the bible.

The GENET is much larger than the animal just above described, having a longer body; its head is long and slender, with a sharp muzzle. The hair is soft, smooth, and shining, of a tawny red colour, beautifully spotted with black dots or rings. The tail is long, and marked with seven or eight rings of black. The hair along the ridge of the back forms a kind of mane, characterised, also, by the formation of a black line from head to tail. From an orifice beneath the tail, exudes a substance, not fœtid, like the ichneumon, but highly grateful to most persons, smelling faintly of musk.

This animal is found in Turkey, Syria, and Spain. For beauty, cleanliness, and activity as a hunter, it has few equals. Its disposition is mild; its colour pleasingly variegated; and its fur valuable.

THE WEASEL.

IN HEB., *Choled.*—(Mustela vulgaris.)—IN ENG., *The Digger.*

"*These also shall be unclean unto you among the creeping things that creep upon the earth; the* WEASEL."—Levit. xi., 29.

WE place the common weasel at the head of a large family, or class of animals, now to be mentioned, characterized chiefly for their disagreeable qualities: they are nearly all a family of *stinkards*, emitting a most disgusting odour from a pouch, before described, near the tail. In disposition and habits they may all be placed in one category—sanguinary, gluttonous, and reptile-like in their bodies; creeping rather than running, though, if occasion requires it, at a pretty quick pace. The word weasel occurs only

once in the bible, in the passage above quoted; had its name not been particularised, the Jewish people would, certainly, not have eaten its flesh, being classed among the unclean beasts by the Levitical law. The learned Bochart supposes that the animal intended, in the above passage of Scripture, means the *mole;* it may be so; but since the mole is mentioned in the very next verse to the one above quoted, and the weasel being notorious for its digging propensities, we think our readers will do right in retaining the word used by the translators of the bible.

The weasel is the least of this family; the length of the head and body not much exceeding eight inches in length; the female something less; the length of the tail about two inches; the eyes are black, and remarkably quick and lively, the very reverse from those which have red eyes; its colour reddish-brown above, and white beneath.

The geographical range of the weasel is considerable, being found in almost every part of Europe, especially in the northern parts: it is known in North America, ranging between Carolina in the south, and Lake Superior and the Saskatchewan river in the north. It is not found in extremely high latitudes; but if in an elevated situation, less northerly, the weasel changes its reddish-brown dress during the winter months, for one more nearly approaching to a dirty white. To this merciful economy of providence we shall have occasion presently more particularly to advert.

From the history of the weasel we learn one great truth, that it is dangerous to be either the com-

panion, or the relative even, of a notoriously bad family. Modern naturalists assure us that the weasel has obtained a much worse character than it deserves, and that the persecutions from man, which everywhere accompany this animal, are most unjust. Its general habits are believed to be comparatively mild. Mice, of all descriptions, rats, moles, and small birds, are its ordinary and favourite food. If so, the farmer commits an act injurious to his own interest, in waging a perpetual war of extermination against the weasel, the presence of which, in barns where corn is housed, and in ricks, would be of great service in destroying the colonies of mice which infest them. A sack, of three bushels measure, is known to have been filled with mice, which had been killed out of one wheat-rick. The weasel is so expert a hunter of these vermin, that the infliction of a single bite on the head is sufficient to lay the victim dead at its feet, the teeth having pierced the brain. We do not say, that newly hatched chickens, or ducks, or game, are not sometimes attacked by this destroyer; and that it is a bad neighbour to the hare and rabbit warren, there can be no doubt. The weasel being an expert climber, the eggs of birds become an easy booty; or young birds are carried off by the same marauder. Having a most acute smell, it is fitted for a diligent and persevering hunter, both by land and water; into the latter element it will readily plunge, and seldom quits the object of its pursuit till the fatal bite is given. Yet we are assured that weasels are not such determined blood-suckers as they have been represented to be.

In their turn they sometimes become victims to

THE FERRET.

birds of prey, and to dogs. In these conflicts, the weasel's courage never fails. It will defend its retreat, against all intruders, until death ends the strife. A kite makes no scruple to pounce upon a weasel, and carry it aloft in its talons. A credible witness tells us, that after having seen this done, he noticed that in a few moments the kite began to show great uneasiness, rising rapidly in the air, or as quickly falling. After a short time, the kite fell suddenly to the ground, near the narrator of these facts. What was his surprise, on hastening to the spot, to find that the weasel was running away from the kite, apparently unhurt, leaving the bird dead, with a hole eaten through the skin under the wing, and the large blood-vessels of the part torn through.

Weasels, though not very numerous anywhere, are prolific, having four or five young at each litter, and that two or three times a year. They make their nest of dry leaves and herbage, either in the crevice of a bank, the hollow of a tree, or in a dry ditch.

The Ferret (*Mustela furo*). The Hebrew word Anakah, translated *ferret*, occurs but once in the bible, and literally signifies *the crier;* but whether the ferret was intended by this word is a matter difficult of decision. One critic thinks the frog was intended; another some kind of lizard. The fact is, that the word only occurring in Leviticus xi. 30, we cannot pronounce positively what animal or reptile is intended.

Assuming the animal named in this passage to be the ferret, we proceed to a short description of

the same. In size, it is somewhat larger than the weasel, and of a yellowish colour, inclining on the belly to white. Its eyes are pink. It is a native of Africa, but domesticated throughout Europe.

The ferret was well known to the ancients, being noticed by Strabo and Pliny, who record its employment in hunting rabbits. It is the most bloodthirsty of its kind; capable of tameness to a certain degree, but without attachment, and therefore always a suspicious, not to say, dangerous inmate. It has been known to attack and lacerate an infant in its cradle, and with such ferocity, that, after it had been driven away, the cries of the tortured child, brought it again from its hiding-place, eager to renew the attack.

This animal is very susceptible of cold; and, to insure its health, must be kept warm. Ferrets are prolific, bringing forth six or seven young, twice or three times a year. The unnatural mother is very apt to devour her own offspring. The young continue blind for a month; but are considered fit for service when three months old.

The method of using these creatures is as follows: the ferret is coped or muzzled, and a small bell tied round its neck; the holes being, as quietly as possible, covered with purse nets: the ferret is then turned into the warren, when the rabbits, perceiving the approach of their enemy, instantly attempt to bolt, when they are secured from escape by the nets. In like manner, ferrets are sent into rat-holes, for the purpose of driving out the rats; dogs being stationed near the holes, to seize upon and kill them.

STOAT AND MARTIN.

The Stoat (*Mustela Erminea*) of this country, so nearly resembles the weasel in size and habits, that one may easily be mistaken for the other. In colour it is somewhat whiter, especially during a severe winter, when, like the true sable, it is found nearly white; and been erroneously called a white weasel. The fur of the British stoat is of little value, having neither the thickness, closeness, or whiteness of the foreign sable.

The Martins form a large and varied family, although not numerous in this country. The north of Europe abounds with them: thirty thousand skins of the pine-martin have been sent to this country from Canada, in one year, and about fifteen thousand from Hudson's Bay, in the same time. It is remarkable that though closely allied to the *stinkards* in other respects, the odour from the martin is musky and grateful.

In appearance the martin has greatly the advantage over animals of this class, being handsome in form, with a lively eye; its motions quick and graceful. When domesticated, it becomes playful and good-humoured, although its attachment is never to be depended upon; taking the first opportunity which presents itself of returning to its native haunts. It is a great sleeper, particularly in cold weather. Its nest is made in the hollow of a tree, where it has a progeny of from four to six at a time. The martin feeds on vermin or corn; honey is also considered by it as a dainty dish.

THE POLE-CAT.

(Mustela Putorius.)

The animal now to be described is one of the largest of its class, and one of the most disgusting. Although not numerous, the hand of man is ever raised against it, either by statute law, or the law of custom, since it is deemed peremptory upon a churchwarden to pay a premium of one shilling for every pole-cat which may be brought him. The colour of this creature is peculiar; the hair being long, of a deep chocolate, with a tawny tinge, and black at the ends. Its eyes are small, but bright, shining with singular lustre in the dark, when the animal is under excitement. Its ears are short and broad, tipped with white on the edges; the head about the mouth is likewise white. The body is long, the nose sharp-pointed, the legs short, the toes long, and the claws sharp. The pole-cat is very active and nimble, can run fast, and creep up the sides of walls with great agility. It is a most determined warrior, using its natural armour with great cruelty. Poultry, pigeons, game, and rabbits are alike its victims. Its thirst for blood being so great, that it always kills more than it can eat. A couple of them have been known to destroy a whole warren of rabbits during a few hours of the night.

Woods, or thick brakes, are the common residence of the pole-cat, burrowing under ground, forming a shallow retreat about two yards in length, and often terminating, for security, among the roots of trees. The female has her litter during the summer-time,

THE SABLE AND POLECAT.

generally five or six in number. She is but an indifferent nurse, suckling her young but a short time, and accustoming them early to feed upon blood and eggs.

When attacked by a dog, the pole-cat defends itself with great courage, fastening, if possible, upon the nose of its assailant, and inflicting a severe bite. The smell of this animal is so fœtid and disgusting, that few dogs will attack it, and afterwards will often desert it when fierce opposition is offered. It is remarkable that though the skin of this creature be drest with the hair on, and used as other furs, yet retains no offensive odour.

This prince of marauders is never seen abroad during day-light, unless under extraordinary circumstances; but at night it always takes care amply to supply the larder. It procures its food in out-houses or barns, near its usual retreat; but sometimes it is obliged to go farther a-field, and adopt new methods for procuring the required supply. During a severe winter, when the ground was covered with snow, a pole-cat was traced from a river's edge to the entrance of its hole. It was observed to have made frequent trips, and, certain marks being noticed in the snow, which could not easily be accounted for, it was thought a matter worthy of greater attention. Its hole being searched, and the pole-cat killed, eleven large eels were discovered to have been the fruits of its nocturnal excursions. The marks in the snow having been made by the motion of the eels, while in the creature's mouth. It seems difficult to imagine by what art this wily animal could have procured a booty, apparently only to be obtained with

great difficulty. The pole-cat is known throughout Europe.

The Skunk (*Mephitis Americana*), is the American variety of the pole-cat. It stands low on its legs, with a broad fleshy body; its eyes small, and ears short and round. The upper parts of the body are nearly white, while the under parts approach to black. The tail is covered with very long hairs, being white above and black beneath. The claws of the fore feet are very strong and long, fitting the animal for digging.

This creature remains dormant during a great part of the winter, scarcely ever going out of its hole in cold weather. Mice and frogs constitute its food. The female is said to have but one litter in a year, and then from six to ten in number.

The skunk is extremely slow; its principal means of defence consisting of a fœtid discharge, which is described as absolutely intolerable. The smell of this animal is ten times stronger than that of a fox. When attacked by a dog, the filthy brute sprinkles it with urine, so that the poor dog will not be sweet again in less than a fortnight, or even more. Notwithstanding this, the Indians esteem the flesh of this fœtid animal a dainty; a statement confirmed by travellers who have partaken of it.

The True Sable, (*Mustela erminea*), is the last of this numerous family which we shall have to notice. The summer dress of the sable is a reddish-brown above, and white beneath; in winter the animal is quite white; the tip of the tail only excepted, which remains always black. It inhabits very high latitudes. The sable skins imported from Siberia and

Lapland being more valuable than any others; the fur finer, longer, thicker, and of the purest and brightest colour. The British importation of these skins amounted, in 1833, to 105,139.

The most interesting particular connected with the history of this animal is the change which is made in its fur, preparatory for winter. There can be no doubt, that generally this change is effected by the loss of the summer coat, and the substitution of a new one; yet it cannot be denied, so wonderfully varied are the works of Providence, that the alteration is often made by an actual change of colour in the existing fur. In Sir John Ross's first polar expedition, a lemming (*Georhyncus*) was exposed on the deck of the ship in its summer dress, to a temperature 30° below zero. By the next morning, the fur on the cheeks, and a patch on each shoulder had become perfectly white. The next day the patches on the shoulders had considerably extended, and the posterior part of the body and flanks had turned to a dirty white. At the end of a week, the winter change was nearly complete.

This statement comes too well attested not to be believed. It must, however, be recollected, that this is not the rule, but an exception. Usually the animal gradually changes its coat, the dark thin hairs falling out, and fine, short, and thick white hairs, spring up in their room. This process in the true ermine, comes on, until from being red and white, the creature's warm winter dress becomes perfectly white. This extraordinary change seems to answer the farther purpose of protecting the animal from its numerous enemies, since being of the same

colour as the snow, on which it creeps, it much more easily eludes the keen eye of the hunter.

We will only add in conclusion, that all the weasel family have the same dental formula: sixteen teeth in the upper jaw, and eighteen in the lower; in some instances, two additional molar teeth are found in the upper jaw.

THE OTTER.

(Lutra vulgaris.)

The otter is so well known to visitors of the Zoological gardens, that little description is required. Its agility in the water is admirable; an element for which this goose-footed creature is obviously made. The eyes are so placed, that whether the animal is swimming below its prey, behind it, above it, or beside it, the least motion of the head and neck, brings it within the sphere of the pursuer's vision. Its short fin-like legs, oary feet, and rudder of a tail, enable it to make the swiftest turns, nay, almost bounds, in the water, according as the rapidity of the agile fish demands; a sudden downward dive, an upward spring, or a side snap. Its fine short fur keeps the body at a proper temperature, and the longer hair being directed backwards, enables the animal to glide noiselessly, and speedily, through, or beneath, the water.

In captivity the otter is restricted in its diet; but when in a state of nature the havoc which this animal makes among the finny tribe is very great. Where

THE OTTER.

a plentiful supply is to be had, the otter goes on killing, though eating a very small part of each fish, especially if large. In the absence of food near a river or pond, its favourite place of residence, this creature will travel more inland, visiting farm-yards, or out-buildings, and attacking lambs, sucking pigs, poultry, and other small prey. Neither is the otter confined to fresh water, but when opportunity offers, in fine weather, will go out to sea, having been seen on the coast of Cornwall, more than a mile from the shore.

Otter-hunting formerly held no inconsiderable place in the annals of sporting; but it has long since had its day, excepting, perhaps, in some places in Wales and Scotland. The otter is certainly capable of domestication; but the lovers of such *pets* would do well to remember the inscription put up in the gardens of the Regent's-park,—"the otter bites." Some of our readers may possibly remember the dialogue introduced by old gossiping Isaac Walton, in the *Complete Angler*, chap. ii., on the subject of the otter.

"*Venator.* Gentleman huntsman, where found you this otter?

"*Huntsman.* Marry, sir, we found her a mile from this place a fishing; she has this morning eaten the greatest part of this trout; she has only left thus much of it as you see, and was fishing for more; when we came we found her just at it. . . . . .

"*Hunts.* Stay a little and follow me—the dogs will be suddenly on this side again, I warrant you, and the other too.

"*Ven.* Now, now *Ringwood* has him—now he's

gone again, and has bit the poor dog. Now *Sweetlips* has her; hold her, *Sweetlips!* Come, bring her to me, *Sweetlips*. Look! 'tis a bitch otter, and she has lately whelped, let's go to the place where she was put down, and not far from it you will find all her young ones.

"*Hunts*. Come, gentlemen, come all, let's go to the place where we put down the otter. Look you, here it was, indeed, for here's her young ones—no less than five; come, let's kill them all.

"*Piscator*. No, I pray, sir, save me one, and I'll try if I can make her tame, as I know an ingenious gentleman in Leicestershire, has done; who hath not only made her tame, but to catch fish, and do many other things of much pleasure."

The Sea Otter (*Lutra marina*) deserves a passing notice. Its haunts are sea-washed rocks, living mostly in the water, but bringing forth its young on land. Its habitat is the North Pacific, from Kamtchatka to the Yellow Sea, on the Asiatic side, and from Alaska to California, on the American coast.

"It might have been sufficient," says Captain Cook, in his last voyage, "to have mentioned that the sea-otter abounds here (in Nootkah Sound), as it is fully described in different books, taken from the accounts of the Russian adventurers in their expeditions eastward from Kamtchatka, if there had not been a small difference in one which we saw. We for some time entertained doubts whether the many skins which the natives brought really belonged to this animal, as our only reason for being of that opinion was founded on the size, colour, and fineness of the fur; till a short time before our departure, when a whole one that

THE SEAL.

had been just killed, was purchased from some strangers who came to barter; and of this Mr. Webber made a drawing. It was rather young, weighing only twenty-five pounds; of a shining or glossy black colour; but many of the hairs tipt with white, gave it a greyish coat at first sight. The face, throat, and breast, were of a yellowish-white or very light brown colour, which in many of the skins extended the whole length of the belly. There is no doubt but that the colour of these animals varies according to their age, till, when they have attained their full growth, they become a glossy black. After that they lose the black colour, and assume a deep brown, or sooty colour; when older, they assume a chesnut brown, or even a lighter colour still."

CLASS I.—MAMMALS.] ORDER II.—CARNIVORA.

DIVISION IV.—AMPHIBIA.

THE SEAL.

(Calocephalus vitulinus.)

Seals form a large family of marine and mammiferous carnivora. Their feet, if such they may be designated, are enveloped in the skin, and so short, that they are unavailable for any purpose on land, but a kind of creeping, the spine and muscles of the body being chiefly employed in a sort of shuffling or jumping motion, in climbing out of the water upon a rock, or other projecting body. The anterior extremities, are rather fins than feet, having webs between the toes, serving as oars. Their elongated bodies,

very flexible spine, consisting of no fewer than forty three vertebræ, powerful muscles, narrow pelvis, and close thick fur, unite, to make them powerful and admirable swimmers, their whole form being adapted for progression in water. Nature also has given them the power of opening or closing their nostrils at pleasure, hereby making the interval between their respirations very long. After opening the nostrils, and making a strong expiration, the animal inspires a large quantity of air, and then closes the nostrils. From a quarter to half-an-hour the creature can remain under the water, without the necessity of coming to the surface for a fresh supply of air. To account for this remarkable fact, some physiologists were of opinion, that the *foramen ovale* remained unclosed in these animals, and that thus the blood was not interrupted during the time of their stay under water. Cuvier and Lawrence, from dissection, both agree, that this is not the fact. In seals the brain is well developed, which is shown by their capability, when domesticated, of learning certain tricks, and obeying the word of command from their masters. The sight of seals is likewise long and good; their hearing quick; their taste sensitive; and their smell acute.

The seal in colour is generally a pale whitish grey; the claws black and strong. The entire length from three to five feet. The mammæ are ventral, two in some, four in number, in others. The teats are concealed in the skin, and thus protected from injury in shuffling on land. Seals are found in the northern seas generally. On the southern coasts of Great Britain they are comparatively rare; but still haunt the estuaries of the Tees.

The following account of an eye-witness is interesting :—"The seals are seen in the greatest plenty on the shores of Cornwall, in the months of May, June, and July. They are of different sizes ; some as large as a cow, and from that downwards to a small calf. They feed on most sorts of fish which they can master, and are seen searching for their prey near the shore where the whistling fish, craws, and polacks resort. They are very swift in their proper depth of water, dive like a shot, and in a trice rise at fifty yards distance, so that weaker fishes cannot avoid their tyranny except in shallow water. A person of the parish of Sennan saw, not long since a seal in pursuit of a mullet, that strong and swift fish ; the seal turned it to and fro in deep water as a greyhound does a hare ; the mullet at last found it had no way to escape, but by running into shoal water ; the seal pursued, and the former, to get more surely out of danger, threw itself on its side, by which means it darted into shoaler water than it could have swum in with the depth of its paunch and fins, and so escaped." The seal brings forth her young about the beginning of autumn ; our fishermen have seen two sucking their dam at the same time, as she stood in the sea in a perpendicular position. Their head in swimming is always above water, more so than that of a dog. They sleep on rocks surrounded by the sea, or on the less accessible parts of cliffs left dry by the ebb of the tide, and if disturbed by anything, take care to tumble over into the sea. They are extremely watchful, and never sleep long without moving, seldom longer than a minute ; then raise their heads, and if they hear or see nothing

more than ordinary lie down again, and so on, raising their heads a little, and reclining them alternately in about a minute's time.

The seal-hunters formerly could make a good harvest by the slaughter of this animal, either by clubs or guns; of late years, however, the number taken has been very inconsiderable.

The Greenland Seal (*Calocephalus Greenlandicus*). However insignificant the seal may be to an European, to a Greenlander it is his all in all; the produce of the seal gives him light, food, and clothing. The seal of the Frozen Ocean, Greenland, Newfoundland, Iceland, the White Sea and Kamtchatka though in some respects different, yet does not essentially differ from that of our own coasts. The hair is drier, closer to the skin, and more free from wool than the other species. The general or ground colour is grey-white, with a few brown spots: the face of the male being quite black.

This species is very numerous in the deep bays, and mouths of the rivers of Greenland and other countries in high latitudes. They make a kind of emigration twice a-year, in March and June. At the former period the female has her young, rarely more than one at a time. Seals avoid the fixed ice, living near ice-islands in herds, among which they often swim under the guidance of a leader. Their favourite food is the arctic salmon. They can swim in any position, on their backs, on their sides, as well as in their ordinary position, and occasionally whirling themselves about, as if in sport.

This animal is said to be so stupid that the native Laplander ventures, in his *kajah* or canoe, to hunt

alone. On perceiving a seal to the windward of him, he approaches with cautious silence, till within the distance of ten or twelve yards, when holding the oar of his canoe with the left hand, he throws the harpoon with his right. If it take effect, the hunter throws the buoy attached to it, overboard, on the same side that the seal dives, and he dives upon the instant. The struck victim may carry the buoy under water; but wearied and wounded, it must at length come up to breathe. The hunter now attacks it with his long lance, and next dispatches it with his short lance. He then blows the animal up like a bladder, that it may swim the easier after his boat. From the experienced dexterity of the hunter these exploits generally end favourably; but in the event of the line becoming entangled, or if the wounded seal turn upon him, which a female followed by her young is very apt to do, the Greenlander is placed in great danger either of his life, or receiving a severe bite or injury, as the case may be. The number of skins procured and imported, amounts annually to hundreds of thousands.

THE SEA-BEAR.

(Ursus marinus.)

The sea-bear is one of the largest of the seal family, equalling in size a large bear. Its colour is brown, which in old age acquires a greyish tint. The external ears are long, covered with short hair, and opening by an oblong slip, which is shut in the water.

Its nails are very minute. The entire length of this animal is about seven and a-half feet.

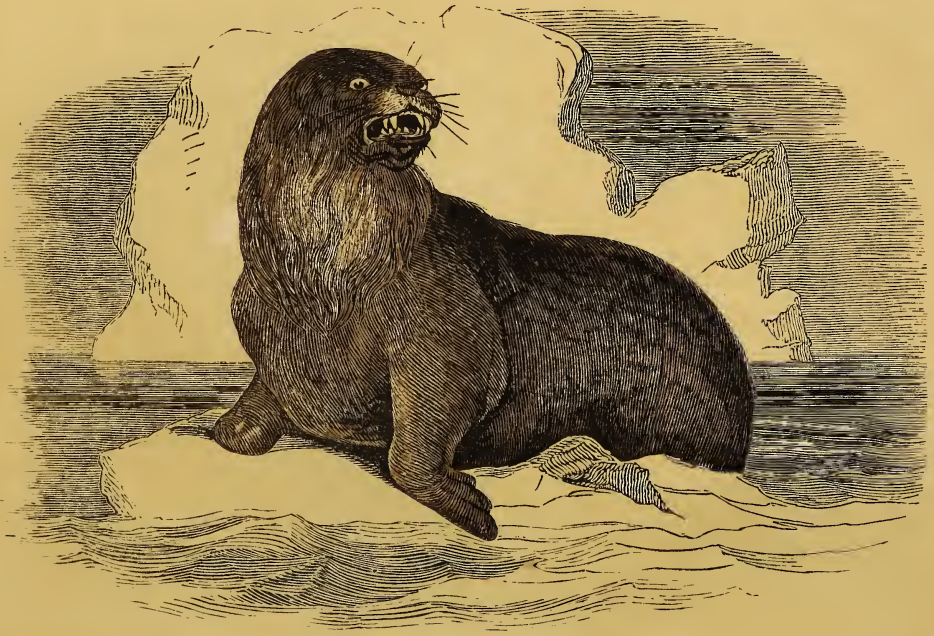
The islands on the north-west point of America, Kamschatka, and the Kurile islands are the habitat of the ursine seal.

These seals are migratory, appearing off Kamschatka and the Kuriles early in the spring, and are then in high condition. They remain on, or near the shore for about two months, during which time the females bring forth. They live in families, every male being surrounded by a crowd of females, which he guards with the greatest jealousy. These families, including the young, amount to a hundred, or a hundred and twenty, living quite separate. In the event of one family encroaching on the station of another, a general fight is the consequence. A traveller has been known to be beset by seals, for many hours together; and at last has been compelled to climb a precipice lest he should fall a prey to these infuriated monsters. They have their land war-notes; and will chirp like a cricket, after a victory. In their gambols on the shore, they low like a cow; but when in distress, will cry like a whelp. They swim very swiftly, and are a great terror to other seals.

THE SEA LION.

(Platyrhinchus.)

Travellers and voyagers are apt to fall into two errors in reference to the subjects of natural history



THE SEA LION

which they describe. Either, first, they ascribe different names to the same subject, or give different subjects one common name. This remark applies specially to those specimens which are rarely to be met with, since they are seen under such circumstances, that only an imperfect knowledge of their appearance and habits can be obtained. These remarks apply to the class of animals which we are now describing. The name of the sea-bear, or the sea-lion, or other general name has been given so as to produce considerable confusion in the classification and description of rare animals, or other subjects of natural history. The *phocidæ*, or seals, being but little known, it may be desirable to say, that the species which we are about to describe is one to which the name of *Forster* has been added by way of distinction.

The habitat of the sea-lion is the icy regions of the southern hemisphere. Captain Cook considered that there was but little danger in going amongst them, since they either remained quiet or made a precipitous flight. Their length varies from ten to fourteen feet, the skin being very thick; the head small in proportion to the body, with cartilaginous ears, which are firm and stiff; hair reddish-brown, or yellowy, perhaps according to age; upper lip overhanging the lower, both lips furnished with long, coarse, and dark whiskers. Forster's notion of them is, that they are fierce and resolute, and not quite so timid as former voyagers had described them. Like the sea-bears, they live together in large, but distinct companies. The old males snort and roar like mad bulls; the females bleat exactly like calves; and the

young cubs like lambs. When assailed by a charge of musketry, some of the females were noticed to carry away their cubs in their mouths. Amongst themselves they appeared united and friendly. They come on shore to breed, where they remain for several weeks, taking little or no food; they then grow lean, and swallow a considerable number of stones, as if to distend the stomach; ten or twelve large stones being found in the stomachs of some which were dissected.

WALRUS, OR SEA HORSE.

(Trichechus Rosmarus.)

THE last of the *Phocidæ,* or seals, we are to notice is the walrus or sea-horse, which though in its general structure resembling the seal, yet there is a singular difference in the *cranium,* or skull. Including the two canine teeth or tusks, of the upper jaw, the animal should have thirty-four teeth; but in adults eight of the incisor teeth out of ten, are, for the most part obliterated. The tusks are generally from fifteen to twenty inches in length; and their weight from five to ten pounds. From the bluntness of the molar teeth it is thought that the walrus usually lives on marine plants, though it will also take animal food. The colour of the animal seems to vary with its age. Some of the males are of very large size; being twenty feet in length, with a girth of from ten to fifteen.

The Icy Sea, the Northern Ocean, Spitzbergen,

THE WALRUS.

Nova Zembla, Hudson's Bay, and the Gulf of St. Lawrence, are the localities where these animals are found in the greatest number.

The tusks of the walrus are employed in procuring its food, hooking up long branches of sea-weeds by means of them. They assist also in grappling the ice, or in climbing upon it. In the water these animals are so rapid that it is difficult to follow them with boats in rowing: on land, they are awkward and slow, performing their movements by a kind of jerk. They are said to be monogamous, or a male associating with one female only. The female brings forth her young one at a time. The walrus is not naturally timid; yet it has been observed that the whole herd never sleep all together, some being always on the watch. On the approach of a boat an alarm is given, and this going from one to another, the whole herd are presently awaked.

These creatures are often to be seen lying on the drift-ice, huddled together by hundreds, making a lowing or bellowing noise, but never anxious to commence an aggressive war; when attacked, however, and especially when wounded, they will make a fierce resistance upon their assailants. Lord Mulgrave relates that on one occasion, a single walrus having been seen on the ice, it was fired at and wounded; upon which, diving into the sea, it brought back a number of others. They made an united attack upon the boat, wrested an oar from one of the men, and were with difficulty restrained from staving or oversetting it, but another boat coming up at the time, they dispersed.

THE BAT.

(Vespertilio Murinus.)

In Hebrew, *Othelaph.*—In English, *The flier in Darkness.*

"*Moreover the* BAT, *and every creeping thing that flieth, is unclean to you: they shall not be eaten.*"—Deut. xiv., 18, 19.

The sacred writer has well designated the bat as *a flier in darkness;* an appellation which the Greeks have copied in calling this animal *nukteris,* from *nux,* night; and the Latins *vespertilio,* from *vesper,* evening. Bats are prettily described by a Roman poet, thus—

> "In towns, not woods, the sooty bats delight,
> And never till the dark, begin their flight;
> Till vesper rises with his ev'ning flame."
>
> *Ovid. Metam.* b. iv.

"In that day," says the prophet Isaiah, chap. ii. 20, "shall they cast away their idols to the moles and to the bats;" that is they shall carry them into the dark caverns, old ruins, or desolate places to which they shall fly for refuge, and so shall give them up, and relinquish them to the filthy animals that frequent such places, and have taken possession of them as their proper habitation. Many travellers speak of bats of an enormous size as inhabiting the great pyramid at Gizeh; and it is also well known that their usual places of resort, in warm climates, are caves and deserted buildings. Well may bats then be called—*fliers in darkness.*

The bat differs from other mammals in having wings, and the faculty of flying without the use of feathers. It has often been described as an imperfect

TERNATE AND COMMON BATS.

animal; whereas both in internal and external structure it appears eminently adapted for the functions required of it. It raises itself from the ground with great ease, and its flight, far from being laboured and ill-directed, is the very reverse, having the singular faculty of avoiding any hindrances to its flight in the interior of a building, even when deprived of sight.

This family, under several diversified modifications, seems to be scattered over the whole surface both of the old and new world. The short-eared bat is the species best known, because most common in Great Britain, although it is also known in almost every part of Europe. Its usual length is about two inches and a-half; the extent of the wings nine inches. The number of teeth varies in different kinds, ranging in number from twenty-six to thirty-six.

It makes its first appearance early in the summer; and, according to some, retires into caves, old buildings, or hollow trees, where it remains in a state of inactivity during the winter. The following anecdote seems to confirm this opinion. At an ancient mansion of Sir Hugh Owen, near Pembroke, in consequence of a stench in a closet, the wainscot was taken down, when two hundred and eighty bats were found and killed. Many of the females had two young ones hanging at their teats; they were a small kind of bat, with little ears, and almost black. The young ones were quite naked like callow birds.

The wings of the bat are membranous, very thin, of a dusky colour, and extending from the fore feet to the tail, giving the animal considerable power in skimming through the air, and along the surface of the water in quest of insects, which are its principal

food. The hind feet are divided into five toes, furnished with claws. The body is covered with a short mouse-coloured fur with a tinge of red; the eyes are very small; and the ears resemble those of a mouse.

The female produces two young at a time, which are at first like unfledged birds; these she suckles at her breast; and often carries them with her, clinging to the mammæ when flying.

The Long-Eared Bat (*Vespertilio Auritus*), differs but little from the foregoing species, excepting that it is much smaller; with ears comparatively much longer.

THE TERNATE BAT.

(Vespertilio Vampyrus.)

The species now to be described is the much talked-of vampyre bat, which grows to a considerable size, being above a foot in length, and the extent of its wings more than four; its tongue is pointed, and terminated with sharp-pointed papillæ, or prickles, with which it punctures animals, or even human beings. Many of these stories are possibly apocryphal, although founded in truth. It was doubtless to the bat that we owe the strange stories of harpies, so graphically described by Virgil, and other ancient authors.

Although the accounts given of the vampyre-bat may be greatly exaggerated, yet it cannot be denied, that in warm climates, they are neighbours of a very

unpleasing character. In some parts of India, the windows cannot be opened without the use of blinds, lest the bats should enter; and which, with all the precaution employed, they frequently do. It is a fact well substantiated, that besides the attack which the vampire makes upon animals of different kinds, that man himself is liable to the visits of this disgusting creature. By night they will approach the naked feet of persons when asleep, wounding them with their *rostrum* or prickly tongue. The bite is described as being so slight, that the wounded do not feel it before the bed, covered with blood, gives token of the wound: the bleeding being sometimes so copious, that it is stopped with considerable difficulty. The following is Captain Stedman's account of this animal, in his own words—"Knowing by instinct that the person they intend to attack is in a sound slumber, they generally alight near the feet, where, while the creature continues fanning with its enormous wings, which keeps one cool, he bites a piece out of the top of the great toe, so very small indeed that the head of a pin could be scarcely received into the wound, which is consequently not painful; yet through this orifice he continues to suck the blood, until he is obliged to disgorge. He then begins again, and thus continues sucking and disgorging till he is scarcely able to fly; and the sufferer has often been known to sleep from time to eternity. Cattle they generally bite in the ear, but always in places where the blood flows spontaneously. Having applied tobacco ashes as the best remedy, and washed the gore from myself and my hammock, I observed several small heaps of blood all round the

place where I had lain, upon the ground, on examining which, the surgeon judged that I had lost at least twelve or fourteen ounces during the night!" The celebrated naturalist, Cuvier, remarks that this species of bats has been accused of having caused men and beasts to perish by sucking them, but it contents itself with making very small wounds, which may sometimes become envenomed by the climate.

The ordinary food of vampire-bats is certainly not blood but fruit. They are extremely fond of the juice of the palm-tree, with which they sometimes intoxicate themselves, so as to drop on the ground. A large number, amounting often to two hundred, may sometimes be seen on the same tree, all hanging with their heads downward, and their wings folded. This manner of sleeping is common to all of the bat tribe.

These monsters have a large geographical range, being found in India, in the islands of the Indian and Southern Pacific oceans, and in South America. In colour they nearly resemble the bats of Europe.

Other species of this animal so nearly resemble those which have been already described, that no farther notice of them seems to be required. We close with remarking, that amidst the infinite productions of Creative power, variety of form, difference of faculties, and degrees of utility, are eminently observable; composing one general plan, in which wisdom, order, and fitness, are displayed through all its parts.

THE HEDGEHOG.

THE HEDGE-HOG.

(Erinaceus Europeus.)

The hedge-hog, one of the most unoffending of animals, is clothed, by the kind hand of nature, with a complete suit of armour, which besides the ordinary protection of a skin, proves also a means of defence against the attacks of its numerous enemies, weasels, polecats, and such like. When alarmed it immediately collects itself into the form of a ball, and presenting a surface everywhere covered with sharp points, few animals are hardy enough to attack it. Dogs which are trained to the practice of hunting this animal will, by continued annoyances, compel this patient creature to unfold itself, when it quickly falls a victim to the fury of the dogs, and their more brutal owners. The work of destruction is constantly going on against this innocent, but disagreeable little animal, from a current belief that it is in the practice of sucking milk from the cow: an absurd charge, totally unfounded in fact.

The hedge-hog is easily taken, since, when assailed it attempts neither to fly or to defend itself; but when touched, shrinks into its circular form, which it will not easily quit, unless thrown into water. The hedge-hog has been often so far domesticated as to learn to turn a spit by means of a wheel, and to answer to its name when called. When at liberty it resides in small thickets and hedges, making a nest of moss, dried grass, and leaves, where it brings up a litter generally of four or five young. It lives on fruits, worms, and insects, which it goes in search of

after dark. It will also suck eggs; and therefore an enemy to be feared in game preserves.

It passes the winter in a torpid state, enveloping itself on all sides with dry herbage. Like most other animals, it puts off its summer dress during the autumn, assuming a thicker and warmer coat of mail for the winter. Hedgehogs, though not rare, are far from numerous.

The TENDRAC, a native of India, and about the size of a rat, greatly resembles the hedgehog in appearance. The upper part of the body is covered with spines, but shorter and smaller than those of the hedge-hog; the rest of the body is overspread with fine hard hair, of a whitish colour. About the head and nose are a number of long hairs. This animal is more lively than the hedge-hog, making a grunting kind of noise. It is usually found on the banks of rivers, making its nest in a hole of the bank; and passing the colder months in a comparative state of torpor. Its general history, however, is but little known.

THE MOLE.

(Talpa Europæa.)

IN HEBREW, *Chaphar Pharoth.*—IN ENGLISH, *The Pit-digger.*

"*In that day a man shall cast his idols of silver, and his idols of gold, which they made each one for himself to worship to the* MOLES *and to the bats.*"—ISAIAH, ii., 20.

So many mysteries are found in the volume of nature, as well as in that of Revelation, that scepticism in reference to the wisdom of a divine Providence, is

apt to steal even into a well-regulated mind; yet when we review the wondrous nicety of adaptation in different animals, according to the circumstances in which they are placed, we cannot but think that the lower parts of creation would join with human beings, had they a speaking tongue, in exclaiming,

"The hand that made us is divine!"

Applicable as such a remark may be to other animals, it is so most particularly in reference to the mole, a creature destined to live in darkness, because constantly beneath the surface of the ground; where also it procures its daily food. This singular animal having to make its way through a dense medium like the ground, and that not after due notice, but instantly, we had nearly said extemporaneously, we may be sure, that the anterior or foremost part of the mole would require an organization of peculiar strength; and such we know to be the fact. The *cranium* or skull of the mole is elongated and pointed, having a peculiar bone for the support and working of the muzzle. The fore part of the animal forms an elongated cone; the posterior part being comparatively narrow and small; but the whole of its proportions admirably fitted for *flying*, so to speak, through the ground. The long and almost round *scapula*, or blade-bone, the expanded *humerus* or shoulder-bone, the enormous power of the anterior extremities, and the great strength and compactness of the *fingers* which turn outward, are all fitted for the digging duty they have to do. To this must be added, that the bony framework is set in motion by very powerful muscles. To perfect the external organization for rapid progress through the ground, a

soft short-cut velvetty coat has been given to this animal, to which no particle of soil ever adheres. The nervous system and senses of the mole are, moreover strongly developed. It is true that its sight is almost rudimentary, being designed for operating only as a warning to the animal on its emerging into the light; and indeed more acute vision would only have been an incumbrance. Compensation for this is made in other ways: the muzzle of the mole is evidently a delicate organ of touch, and that sense is farther perceptible in its large and broad hands and feet; the tail also gives notice of any attack from behind. The smelling of the animal is very sensitive; and though there is no external ear, yet from the largeness of the tympanum, or drum of the inner ear, the hearing becomes highly developed. The dental arrangement is very perfect, there being twenty-two teeth in each jaw.

The mole is well known throughout the whole of Europe, with the exception of extreme cold regions. Its favourite abode is in a loose soft soil, which affords the greatest quantity of worms and insects, on which it feeds. The female brings forth in the spring, generally producing four or five at a time. The young at first are quite naked, and continue so for some time. It makes a nest a little below the surface of the ground forming a commodious retreat, with moss and dry herbs. From this circular nest or fortress, as some have called it, passages are made in different directions, through which retreat may be made in case of danger, and in which excursions are made in search of food. In forming its runs large heaps of mould are thrown up, which prove extremely

THE GROUND OR STRIPED SQUIRREL.

injurious in meadows and arable land. A war of extermination is therefore carried on against them by farmers and gardeners. In their habits they are strictly carnivorous; since they have always perished in confinement, when attempts have been made to keep them to a vegetable diet.

The American moles so nearly resemble those of Europe, that they do not require a distinct notice.

THE SQUIRREL.

(Sciurus vulgaris.)

We now enter upon a class of animals which differ from those already described in being granivorous, or feeding on grain and vegetables, and hence designated *rodentia*, or gnawers.

Few animals are better known than the red squirrel, the only species which is a denizen of Great Britain. It is naturally agile and lively, running up or down trees with great facility, and bounding from branch to branch with the rapidity of thought. The length of the squirrel, including the tail, is about fourteen inches. The summer dress of this pretty little animal, is more uniformly of a bright red-brown than in winter, when the fur becomes softer and thicker, but assuming a greyish tint. The summer change is not complete until about July. In its native forests, it is extremely wild and timid, not suffering the near approach of either man or animals; and such is its unceasing motion and swiftness, that it almost bids defiance to the destructive rifle itself.

When taken young, it readily becomes domesticated, receiving any favourite food from the hand of its owner.

During the summer the squirrel feeds upon buds and young shoots, particularly those of the fir and pine, and hereby doing great injury to young plantations. It is beside, extremely provident, laying in a vast magazine of nuts and acorns for winter; these stores being securely deposited in some hollow tree.

In the spring, which is the season of love, the females often give wonderful proofs of their agility in their precipitate flight, and entertaining sallies, when pursued by the male squirrels; feigning, as it would seem, an escape, probably to enhance the value of the conquest, or to test the constancy of their lover. The riot of courtship over, and a mate selected, the female prepares for domestic life, making her nest in the hollow of a tree, or more generally, between the forked but highest branches of a tree. The litter usually consists of four or five, which the mother nurses with great care.

Young squirrels are not unfrequently brought up under the charge of a foster-mother. White, in his entertaining history of Selborne, relates, that a boy having taken three young squirrels from their nest, committed them to the care of a cat which had lately lost her kittens: pussy not only fondled and suckled them, as if her own offspring; but perceiving that visitors became rather numerous to see her singular family, she began to show symptoms of jealousy, and took an early opportunity of removing her charge over the ceiling of the room, for their additional safety.

The flowing tail of the squirrel is doubtless one distinguishing mark of its beauty; the tail also contributes to the comfort of the animal by day from its warmth, and serves at night for a soft bed on which to recline. Bewick mentions a use to which the tail is applied which our readers would not suspect. He states that when squirrels are desirous of crossing a lake or river, they provide themselves with a piece of wood upon which they sit, and erecting the tail as a sail, for catching the wind, boldly commit themselves to the mercy of the waves. A sudden gust of wind will suffice to overset a whole navy of these adventurers, and by which many hundreds perish.

The Grey Squirrel (*Sciurus cinereus*) is not uncommon in northern Europe; but in North America large flocks of them have been known to come from the mountains to desolate the fields of maize in the valleys. A reward of three-pence a head was offered for this marauder; the number of which was so great, that the state of Pennsylvania has paid rewards in one year, to the amount of eight thousand pounds currency. Its habits are similar to those of the common squirrel.

The fur of this animal, which becomes white in winter, is very valuable, and is imported under the name of *petit-gris*.

The Black Squirrel (*sciurus niger*), like the last-described, is nearly twice the size of the common or red squirrel. It is numerous in North America, and not rare in northern Asia. Its habits greatly resemble other members of this family, excepting that its nest is made under-ground, where a stock of provision for winter use is deposited. Its food is chiefly

maize: it is said to be extremely lively, gentle, and docile. Specimens of the grey and black squirrels may be seen in the gardens of the Regent's Park.

The Dormouse, or Ground Squirrel (*Sciurus striatus*), is not uncommon in England, but very numerous in the forests of North America and northern Asia. Like the black squirrel its nest is under ground, formed with considerable skill, and with two entrances. According to Bewick, it deposits its winter food in different store-houses, having acorns in one, nuts in another, maize in a third, and in another chesnuts, said to be its favourite food. In collecting their stores, they have the practice of cramming as much as possible into their mouths, and in this manner carrying it home.

Few animals are more sensible of cold; hence even in summer-time, they spend a great part of the day, warmly wrapped up, in sleep. In winter they remain in a dormant state.

This animal is distinguished by a stripe of black, which runs along the ridge of the back; and on each side a yellow stripe bordered with black.

The Flying Squirrel (*Sciurus volans*). This variety is but little known, although its geopraphical range is considerable, being found in all the northern regions of the old and new continent. It is numerous in America; and a variety of very large flying squirrel is found in the islands of the Indian Archipelago. The flying squirrel lives in trees, sleeping during the day, but is extremely active at night.

The head of this species is small and round; its eyes large and dark; and its ears small and naked. It differs from its congeners in a peculiar organ-

JERBOAS

ization which enables it to leap, or rather to fly to a distance of twenty or thirty yards. There is a membraneous continuation of the skin of the sides and belly, which extends from the toes of the fore feet to those of the hind feet, forming at the will of the animal when stretched out, a kind of parachute, enabling it to make very lengthened bounds. The specimen of this curious animal in the Surrey Zoological gardens, is somewhat larger than the common squirrel, and of a grey colour.

Though quiet in captivity, the squirrel is naturally wild and timid.

The Long-tailed Squirrel (*Sciurus maximus*) is one of the largest of this family, being three times the size of the common squirrel. Its pervading colour is a dull yellow; the back being black. The tail is nearly twice the length of the body, of a light ash colour, and extremely bushy. This variety is found in Ceylon, and on the Malabar coast. Its habits, it is believed, do not differ from other squirrels.

The Jerboa (*Mus jaculus*) is a native of Egypt, Barbary, and Palestine; and is thought by many to be the *mouse* of Holy scripture. (Isaiah, lxvi. 17.) In size it is somewhat less than a rat; and furnishes a connecting link between the rat and the kangaroo, which latter animal it more nearly resembles than any other European mammal. The fore legs are only about an inch long, the hinder ones four times that length, so that its motions are rather jumping than walking or running. Its eyes are large and full. The tail is much longer than the body, and terminated with a black tuft, the tip of which is

white. The general colour is reddish, but gradually becoming lighter, till the under part of the body is quite white.

It is considered to be lively and harmless, burrowing in the ground, and living entirely on vegetables. When pursued, the animal springs forward so nimbly, that its feet scarcely seem to touch the ground. It is very sensible of cold, wrapping itself warmly up at the approach of winter. It readily submits to captivity, being easily tamed.

THE MARMOT.

(Mus marmota.)

The marmot stands at the head of a numerous family inhabiting different localities; though in appearance and habits very much the same. Our limits will only permit us to notice one or two of the principal. The marmots unite the family of the rat with that of the rabbit.

The animal now to be described inhabits the highest regions of the Alps; but found likewise in Poland, the Ukraine, and Chinese Tartary. It is somewhat less than a hare, having short round ears, which are nearly hid in the fur; its tail is short and bushy; the colour on the back of a brownish-ash colour, but more inclining to red on the belly. Its voice resembles that of a young puppy, which under excitement becomes a loud and piercing whistle.

The marmot has its brood of three or four young in the spring of the year, having first recovered a

THE MARMOT.

little from the lean and emaciated state in which it is found at the close of its long winter confinement. The retreat of the marmot is made with considerable care, in a hole by the side of a mountain, a quantity of moss and hay lining the chamber, which is deep and spacious. Two entrances are made from it, conformably to the practice of burrowing animals, which are carefully stopped up when cold weather sets in; and which effectually prevents the discovery of their retreat. The chamber, or nest, is large enough to accommodate from five to a dozen of these animals; who rolling themselves well up with hay, remain in a torpid state, perfectly secured from the pitiless storm which rages without during the winter.

In the summer months the marmots herd together in companies, placing a sentinel for their better protection, to give notice by a whistling noise, on the least appearance of interruption, when the whole party precipitately sound a retreat, the sentinel bringing up the rear.

The marmot readily becomes domesticated, learning certain little tricks, which it exhibits at the command of its owner. Its favourite food in captivity is milk and butter; although in a wild state, its fare consists of insects, roots, and vegetables.

The Lapland, or Quebec Marmot (*Glis marmota*) is essentially the same as the foregoing, but somewhat larger and of a yellowish-grey colour.

THE RAT.

(Mus rattus.)

Amidst the vast variety of creatures which exist, it may be difficult to decide upon the particular purpose for which many have been brought into being, the utility of their existence being so questionable. Should we come to the conclusion that rats among quadrupeds are useless in creation, we might next feel disposed to doubt whether many bipeds should not be placed in the same category.

The rat is pronounced everywhere to be the enemy of man. It destroys much more than it consumes; and though all kinds of means have been employed for its destruction, the number still continues undiminished, especially in rural districts. Originally the denizens of Europe only, rats have undesignedly been transported into almost every country of the known world. The black rat was formerly the species most common in England; but for some years past, this kind has gradually disappeared, having been superseded by the Norway, or brown rat. Being a most prolific animal, there is reason to believe that the country would soon be overrun by them but for the destruction which they make amongst each other. The male rat will, if possible, get at a young brood to destroy it, if not prevented by the watchful care of the mother; and should provisions run short a general massacre begins, the weaker being killed and devoured by the stronger.

These animals are omnivorous in their feeding. In summer they frequent rivers, ponds, and ditches,

WATER RAT AND COMMON RAT.

living on frogs, fishes, and small animals; or they travel farther to destroy rabbits, poultry, young pigeons, chickens, or ducklings; or they infest the granary, barn, and storehouse; they also do infinite mischief among corn and fruit; eating much, and carrying more away. In these depredations rats often give proof that they are not wanting in cunning, daring, or courage. If closely pursued, they will turn upon their assailant. Their teeth being long and sharp, a severe wound can be inflicted, which often proves very painful and difficult to cure.

The female is a prolific breeder, having several litters in a year, consisting in number from twelve to twenty.

The Water-Rat (*Mus amphibius*) is somewhat smaller than the rat just described, from which it differs chiefly by its habitat, which is the neighbourhood of rivers, ponds, and ditches. It burrows in the ground, where it makes its nest, the entrance to the burrow being usually at the water's edge. Being an excellent diver and swimmer, with the capability of continuing a long time under water, it readily supplies itself with fish, spawn, frogs, and other aquatic products.

The Musk Rat (*Castor zibethicus*) is a native of Canada, and receives its name from a strong musky smell which it emits, especially during the summer months. Its size is that of a small rabbit, resembling the water-rat in its habits, combined with those of the beaver. Inhabiting a cold country it is more warmly clothed than its congeners, having beneath the hair a fine down, which has been employed with advantage in hat-making.

At the approach of winter, these animals become gregarious, a number of families associating together. They build huts of about two feet in diameter, composed of herbs and rushes, cemented with clay, forming a dome-like covering; from these are several passages in different directions, by which they go out in quest of roots and other food.

THE MOUSE.

(Mus musculus.)

In Hebrew, *Achbar.*—In English, *Land-destroyer.*

"*These also shall be unclean unto you among the creeping things that creep upon the earth; the weasel, and the* MOUSE, *and the tortoise after his kind.*"—Levit. xi., 29.

Commentators are agreed, that if the animal here referred to be not the common, or field-mouse, it must at least be a creature of the mouse kind; perhaps the jerboa, an animal which is found in Egypt, Barbary, and Palestine. Of the jerboa we shall take occasion to speak again presently. The name obviously has reference to a creature living out-of-doors.

The domestic mouse is so well known, being diffused in great numbers over almost every part of the world, that a very short notice will suffice. Its enemies are numerous and powerful, while in itself it is weak and timid; yet preserved from utter extinction by its amazing fecundity, bringing forth several times in the year, and generally from six to ten each litter. The young, though produced without hair, yet in little more than a fortnight are able to shift for

FIELD MOUSE. SHREW. COMMON MOUSE.

themselves. Aristotle, one of our earliest naturalists, tells us that having shut up a lady-mouse, which was about to increase her family, in a suitable place, and provided plenty of grain for her, and her offspring, he was surprised to find, that in a very short time no fewer than a hundred and twenty mice had all sprung from the same stock.

White mice are considered rather an accidental variety, than a distinct species; their fine full eyes, of a red colour, form an agreeable contrast with the snowy whiteness of their fur.

The Field Mouse (*Mus sylvaticus*) is another variety, being somewhat larger than the domestic mouse, and of a brighter brown colour with a white belly. Its eyes are singularly large and prominent. Fields, woods, and gardens are its habitat, where it feeds on nuts, corn, and acorns. More thrifty than the town-mouse, it lays up great stores against a rainy day, that is, for its support during winter. It burrows in the ground, making a rude nest near the root of a tree, or thick bush. Should provisions fail, it is no uncommon thing for them to feast upon each other.

The Shrew Mouse (*Sorex araneus*) forms another large section of the mouse family. Some of the shrews are strictly land animals, while others are found on the banks of rivulets, or marshy places, living almost in the water. They are both somewhat smaller than the domestic mouse; the land shrew-mouse being less than that which frequents the water. They are nearly alike in colour, being of a reddish-brown, with white bellies.

The shrew-mouse frequents old walls and heaps of

stones, feeding on insects, corn, and other garbage. From the peculiar construction of its long snout and fore teeth, it can readily root up the ground like the hog. Its nest, which is placed on the surface of the ground, consists of dry grass and moss. It is very prolific, having a brood of four or five, several times in the course of a year. The cat is an avowed enemy to these creatures: but from some disagreeable smell which they have, she always refuses to eat them when killed.

An annual mortality takes place among these animals in autumn, great numbers being found dead in the field; but from what cause remains a mystery.

THE BEAVER.

(Castor fiber.)

The geographical range of this animal has been greatly curtailed. It was formerly a denizen of Great Britain, and of all the countries of northern Europe. The numbers now are reduced within a very narrow compass. About the year 1822 a small colony of about twenty beavers existed on the small river Nuthe, a short distance above its confluence with the Elbe, in a lonely part of the Magdeburg district, where they had been settled for more than a century. Naturalists are agreed that the European and American beavers are essentially the same. In Canada, and the more northern parts of the American continent, beavers were everywhere to be found; but now, partly from the encroachments of

settlers, and partly from the perpetual exterminating wars which have been carried on against them, their numbers have not merely been greatly diminished, but the habits of those that are left considerably changed. From being gregarious, many of them have become solitary, termed by the natives *terriers*, or *old bachelors*.

Their history is now much better known than formerly, and a great many of the marvellous stories told of their republican habits, architectural skill, and amazing sagacity, turn out to be, if not old wives' fables, at least great exaggerations. That the account which Pliny and other early naturalists give of this animal should verge upon the marvellous is not surprising; but the comparatively modern statements given in books are no less false. That the beaver is naturally a cunning gregarious creature there can be no doubt; that they construct houses of mud and wood for their reception during the winter season, is also certain; but that the houses are divided into kitchens, parlours, and bed-chambers, is incorrect, since the utmost which the beaver aims at is, the convenience of having a dry place to lie on. It is quite true that one common passage, the entrance to which is below the surface of the water, conducts to a suite of chambers, because beavers being monogamous, or living together in matrimonial alliance, each pair will occupy their own chamber, while free access, for the sake of good-fellowship, is permitted to the dwellings of those who are literally under the same roof. Neither have the houses of the beavers two entrances; such a construction would defeat the object of their building altogether, since it would neither

protect them from their enemies, or guard them against the extreme rigour of a winter season. Neither do beavers, in building, ever drive stakes into the ground, as some early travellers asserted; on the contrary, they invariably lay the wood cross-wise, and nearly horizontal, without any other order than that of leaving a hollow, or cavity, in the middle. Should the wood employed be too long, they cut the ends off with their teeth. It is, moreover, quite a mistake to suppose that the wood work is first finished and then plastered. They invariably carry the branches of trees which they use and the mud together in their fore-paws. Neither is the tail of the animal ever used for plastering. The clapping of their scaly tail is a mere habit, which they always preserve, even when domesticated.

The food of the beaver consists chiefly of the stalk of the water-lily and the bark of trees, varying their diet in summer by eating various kinds of herbs and berries. In the spring, on the breaking up of the ice, beavers always leave their houses, roving about until about the fall of the leaf, when they begin to collect wood for the reparation of their old dwellings. They, however, never complete their work until the cold weather has actually set in. The young ones begin their new houses at the same time.

The female breeds once a-year, during the summer, bringing forth two or three at a time. The general colour of this animal is a chesnut-brown. The fur of those which are black are most esteemed. The beaver is remarkable for the size and strength of its cutting-teeth, enabling it to gnaw down trees of considerable size. It has five toes on each foot,

armed with strong nails; the hind feet have a membrane between each toe. The beaver is, consequently, an expert swimmer. The length of the beaver, from nose to tail, is about a yard. The castor of these animals is found in bags under the tail, about the size of an egg.

The skins of the beaver imported to this country were formerly very great, amounting, in some years, to more than fifty thousand. This number is greatly on the decline; and we believe that nine-tenths of the hats now manufactured, and called beaver hats, do not contain a particle of beaver fur.

The Hamster (*Cricetus vulgaris*), though a land animal, accords very much in its general habits with the beaver. It is found in all the northern parts of Europe and Asia. It always chooses a sandy soil, marshy places by no means suiting it. Hamsters may be reckoned amongst the most skilful of burrowers, making themselves retreats of large extent; every hamster being provided with a separate apartment, besides magazines of some extent, in which the provender is housed. They are bad neighbours to the farmer, consuming and carrying away great quantities of corn. For this purpose nature has provided them with two cheek pouches, into which they thrust the corn for the purpose of carrying it home. So large a quantity is deposited, that when the hunter finds one of their retreats, he calculates upon obtaining two bushels of winnowed corn from each magazine. These stores are collected chiefly in the fall of the year, about which time they retire to their retreats, filling up the passage to them, for their better security during the winter. At the beginning

of the cold weather they get a supply from their storehouses; but when the cold increases they become so benumbed by it as to remain in a state of insensibility.

They are by no means gregarious, though a number of them are always found very near each other, one common passage conducting to their different apartments. Even the males and females are not together, excepting just at the time of courtship, and then only for a very short time. Should two males, in search of a female, chance to meet, a desperate battle ensues, which often proves fatal to one of the combatants, the female forming a short connection with the conqueror. The female brings forth two or three times in a year, having from sixteen to eighteen at a birth. She is, however, but an indifferent mother, forcing the young from her apartment, when about three weeks old, to shift for themselves. They increase so rapidly that, but for their own quarrels and massacres, they would become a serious scourge to the locality where they are found.

In colour they are of a reddish-brown above, and black below, with three whitish spots on the side; their feet are white. Their average length, including a short tail, is about a foot. The males are somewhat larger than the females.

The hamster is found in various parts of Germany, Poland, and the Ukraine. The skin of this animal is in high estimation, from the hair being so closely united with it, that it cannot be pulled off without great difficulty.

AFRICAN AND BRAZILIAN PORCUPINE.

THE SURICATE AND COATI-MONDI.

THE PORCUPINE.

(Histrix cristata.)

The works of nature are so diversified as everywhere to strike a reflecting mind with astonishment. Opposites often combine in the same animal. Few creatures are more innocuous and less offending than the porcupine, which, subsisting on a plain vegetable fare of roots and herbs, sleeping during the day and feeding in the night, is yet clothed in an armour more truly formidable in appearance than in reality. Had this creature possessed the power which ignorance has attached to it, of darting its quills, *ad libitum*, at its enemies, it might, indeed, well have been feared. But having neither the power or the inclination for attack, its warfare is simply defensive, proceeding rather from motives of fear than anger, raising its quills, shaking them with great violence, and directing them toward their assailant. Their armour often proves a means of protection, though they sometimes perish from the aggressive violence of their enemies, the body of the porcupine having been found in the stomach of the larger snakes.

The quills are about twelve or fourteen inches in length, thick in the middle, and extremely sharp towards the end. The tail is covered with short and transparent white quills. The legs are short, the fore-feet having four toes, the hinder ones five.

India, Persia, Palestine, and most parts of Africa, are the habitat of the porcupine; a few also are found in Spain and Italy. They are nowhere very common, the female being but a slow breeder, the

term of her gestation seven months, bringing forth only one at a time.

The Brazilian Porcupine (*Histrix prehensilis*), can scarcely be associated with the animal just described, but for its being covered with spines about three inches in length, which are white and sharp. The breast, belly, and lower part of the legs are covered with strong brown bristly hairs. The tail is long and tapering, which assists the animal in climbing trees.

It is found chiefly in Mexico and Brazil, living in woods, and feeding on fruits and small birds, which it takes by night. It makes a grunting noise like a swine.

The Canadian Porcupine (*Histrix dorsata.*) The head, body, and upper part of the tail of this animal are covered with long soft hair, in which are interspersed a number of strong sharp spines. The tail, though comparatively short, yet assists the creature in climbing.

This variety of the porcupine inhabits the colder parts of North America, being found as far north as Hudson's Bay. The trading Indians, during their long excursions, depend very much on this creature for a supply of food, which they pronounce wholesome and palatable. The quills of this animal are employed by the natives to trim the edges of their deer-skin habits, so as to look like fringe: they stick them likewise into their noses and ears, to make holes for the rings which they are accustomed to wear.

THE HARE

THE HARE.

In Heb. *Arnebeth.*—(Lepus timidus.)—In Eng. *Herb-cropper.*

"*And the* hare, *because he cheweth the cud, but divideth not the hoof; he is unclean unto you.*"—Levit. chap. xi., 6.

The Hare is so well known that a description of it is unnecessary. It is found in most parts of the world, the American variety being somewhat less than that of Europe. In high latitudes the hair is white.

According to the Jewish law the hare was accounted unclean, not because of any filthy or lascivious habits, but because the feet were not divided by a corneous separation. Moses asserts that the hare chews the cud (a process to be more particularly described in another place), although many have denied the fact. The account which is now to follow will set this question at rest.

About the year 1774 the poet Cowper, being then an invalid, had a leveret sent him, then about three months old, and soon after his neighbours sent him as many leverets, to use his own words, "as would have stocked a paddock." From all these he selected three, which, though all males, he named Puss, Tiney, and Bess. He built them houses to sleep in with his own hands, allowing them in the day-time to range in the hall, while at night each retired to his own bed. Puss soon grew familiar, leaping into his owner's lap, suffering himself to be carried about in the arms, and sleeping on the knee. He was taken ill, when the poet nursed him. "No creature," says Cowper, "could be more grateful than my patient after his recovery, licking my hand, leaving no part of it un-

saluted." Having accustomed Puss to go into the garden, the creature became impatient for the return of the treat, drumming upon his owner's knee, or taking the skirt of the coat between his teeth. In Cowper's judgment, he was happier in human society, napping, or *chewing the cud*, than when shut up with his natural companions.

"Not so Tiney;" continues Cowper, "upon him the kindest treatment had not the least effect." He was nursed in sickness, but so morose was he, that if his owner offered to stroke him he would grunt and attempt to bite. His very surliness became a source of mirth to his owner.

Puss was tamed by gentle usage; Tiney was not to be tamed at all. Bess had a courage and confidence that made him tame from the beginning. He, however, died young; Tiney lived nine years; poor Puss died at the age of eleven years and eleven months, of mere old age.

Sleeping by day, but wakeful at night, they were always admitted into the parlour after supper, where, the carpet affording their feet a firm hold, they would frisk and bound, and play a thousand gambols, in which Bess, being remarkably strong and fearless, always proved himself the Vestris of the party. One evening the cat, being in the room, had the hardiness to pat Bess upon the cheek, an indignity which he resented by drumming violently upon her back, making her retire to hide herself.

It is said that a shepherd knows every sheep apart; in like manner Cowper tells us he immediately knew from the countenances of his pets which one it was. The prepossessions of these creatures were also no-

ticed to be peculiar. Some persons they seemed to dislike from their smell, and would scream when they attempted to touch them. A miller once coming in, at once gained their affection; his powdered coat had charms which were irresistible. The poet was of opinion that hares have a peculiar dread of man, only because man gives them peculiar cause for it.

The general opinion is that hares graze. This we believe to be an error, since leaves of almost every kind, save thistle, dandelion, and lettuce, are invariably preferred. Both the blade and stalk of green corn they regard as a delicacy. Wheaten straw is another dainty dish. These pets of the poet were chiefly fed upon bread, mixed, in the absence of summer vegetables, with shreds of carrot, and rind of apple cut extremely thin, the apple itself being disgusting to them. The young twigs of hawthorn and the common brier were alike grateful to these creatures.

To Puss, the last surviving favourite, Cowper, with great caution, introduced "a spaniel that had never seen a hare, to a hare that had never seen a spaniel. Puss discovered no token of fear, nor Marquis the least symptom of hostility." The poet, therefore, concludes, that there is "no natural antipathy between dog and hare; but that the pursuit of the one occasions the flight of the other, and the dog pursues because he is trained to it." Hares have the character of being very cleanly, having no ill scent, or infested by any vermin.

The hare is very prolific, breeding three or four times a-year, and generally has three or four at a litter. The season of love begins in February.

Our readers will excuse us if we intrude farther upon their time by transcribing the epitaph for *Old Tiney*, written by the amiable Cowper, who always moralizes his song :—

Here lies whom hound did ne'er pursue,
Nor swifter greyhound follow,
Whose foot ne'er tainted morning dew,
Nor ear heard huntsman hollo.

Old Tiney, surliest of his kind,
Who, nurs'd with tender care,
And to domestic bounds confined,
Was still a wild jack-hare.

Though duly from my hand he took
His pittance ev'ry night,
He did it with a jealous look,
And, when he could, would bite.

His diet was of wheaten bread,
And milk, and oats, and straw;
Thistles, or lettuces instead,
With sand to scour his maw.

On twigs of hawthorn he regal'd,
On pippins' russet peel,
And when his juicy salads fail'd
Slic'd carrot pleas'd him well.

A turkey carpet was his lawn,
Whereon he lov'd to bound,
To skip and gambol like a fawn,
And swing his tail around.

His frisking was at ev'ning hours,
For then he lost his fear,
But most before approaching show'rs,
Or when a storm drew near.

Eight years and five round-rolling moons
He thus saw steal away,
Dozing out all his idle noons,
And every night at play.

I kept him for his humour's sake,
For he would oft beguile
My heart of thoughts, that made it ache,
And force me to a smile.

But now beneath his walnut shade
He finds his long last home,
And waits in snug concealment laid,
Till gentler Puss shall come.

He, still more aged, feels the shocks,
From which no care can save,
And, partner once of Tiney's box,
Must soon partake his grave.

The Alpine Hare inhabits the hills of Scotland, Norway, Lapland, Russia, and Siberia. During the summer months it is grey, which, on the approach of winter, changes to a snowy white, excepting the ears, which never change. In the autumn these animals collect a vast quantity of herbage, which, when dry, is piled round the trunks of trees, or other places of security; from these they supply themselves when the rigour of the climate prevents them from quitting their subterranean retreats in search of food.

THE RABBIT.

(Lepus cuniculus.)

Although to an inexperienced person the hare and the rabbit may appear but varieties of the same animal, yet nature has mysteriously placed such a bar between them, that neither in captivity or in their native wilds, have they ever been known to inter

mix. Far from this, they are essentially different in their habits and propensities. Rabbits seek protection and repose by burrowing in the ground, while the hare prefers the open fields, trusting for safety to its speed.

The rabbit abounds in Great Britain, and throughout Europe, excepting in very high latitudes, where it can alone be reared in houses.

This animal is remarkable for its fecundity, procreating at the early age of five or six months, having six or seven broods in a year, and generally producing eight young at a time. The period of gestation is thirty days. Previously to the birth of her young the female makes a secure warm nest, procuring the down which she employs from her own person. Her chief anxiety is to protect them from the male rabbit, who would inevitably destroy them could he find an opportunity so to do.

The flesh of the rabbit is by the law of Moses accounted unclean. The animal itself is not mentioned by name throughout the whole Bible.

The Domestic Rabbit (*Lepus domesticus*), does not materially differ from that just described. It is somewhat larger, and of various colours, white, brown, black, and variegated. Its flesh is not so good for the table as that of the wild rabbit, being soft and insipid. The best food for the tame rabbit is sweet hay, clean oats, and succulent plants.

THE GUINEA-PIG.

(Mus porcellus.)

This pretty and well-known animal has been naturalized in almost all the countries of Europe, though originally a native of Brazil. Guinea-pigs cannot live in very cold countries, often perishing even in temperate climates during the inclemency of winter. Neither their skins or their flesh are of much value. The females make bad mothers, being void of attachment to their offspring, allowing them often to be devoured the moment of their birth by the male, without making any attempt to defend them. Guinea-pigs are naturally gentle and tame, doing neither good or harm.

The conformation of the upper lip in this animal is peculiar, being only half divided. Its prevailing colours are white, black, and orange; its food grain and vegetables. About the age of two months the guinea-pig begins to breed, producing from four to twelve at one time.

The Agouti (*Cavia Aguti*), is found in considerable numbers in the woods of Guiana and Brazil, making its nest in hedges and hollow trees.

The agouti being the denizen of a warm climate, breeds throughout the whole year, producing four or five at a time.

It is a quiet harmless animal, and easily tamed. It makes a grunting noise like a pig. The size of this animal is about that of the hare. It is of a brown-red colour, and eats fruit, roots, nuts, and vegetables.

THE SPOTTED CAVY.

(Mus paca.)

This animal is a native of South America, living on the banks of rivers, or moist places, secreting itself in a burrow during the day, but going out in quest of food at night.

Its habits are cleanly, though its motions are heavy and ungraceful. When pursued it will take to the water, diving with great dexterity. If hardly pressed it will make a vigorous defence. It is about the size of a hare, but plumper and fatter; of a dark brown colour, marked with lines of white spots running from its throat to the rump—(see our Engraving)—the belly is white.

Like the guinea-pig, the spotted cavy has no tail.

The Capibara (*Sus hydrochærus*), greatly resembles the animal last described, being something between the hare and the hog; larger than the former, but less than the latter. It is a native of South America, living on the banks of the great rivers of that country. It so readily takes the water that it lives chiefly on fish. The water, likewise, is its chief means of defence in the event of any attack. These animals are generally found in large herds, making a noise not much unlike that of an ass. Feeding as they do by night, they often commit great ravages on sugar plantations and gardens.

The fore-feet have four toes, the hind ones only three, all the toes having a web between them. The capibara has no tail, and is of a brown colour.

CHINCHILLAS.

THE CHINCHILLA.

(Chinchilla lanigera.)

This interesting little animal is the last in the family of the *rodents,* or gnawers, which we can notice. Its valuable skin has long been known, although the original wearer of it has been unknown. More than one having been lately brought alive to this country, naturalists are agreed that it forms a distinct genus, greatly resembling the jerboa. The chinchilla inhabits Chili, in South America, and may, perhaps be found to exist along the whole chain of the Andes It is small in size, being only about nine inches in length, and the tail about five. The hind legs are considerably longer than those before, which enable the animal to sit up like the kangaroo; its motion, also, more resembling jumping or bounding than running. The head is not unlike that of a rabbit; the eyes large and black; the ears round and large; the moustaches abundant and long. The fur is extremely soft and downy, yet long and close; its colour an ashy grey, whiter beneath than above.

The chinchilla is a burrowing animal, living in holes under ground in the open country. It feeds chiefly on the roots of bulbous plants; and produces, twice a year, five or six young ones. It is of cleanly habits, and without any bad smell.

THE SLOTH.

(Bradypus communis.)

The class of animals upon which we are now entering is united together by very slight analogies. The principal is that of having no incisors, or cutting-teeth. The sloths are called *tardigrades*, or slow walkers, since their motion on the ground is both tardy and difficult. They have three toes, or rather three very long claws, on each foot, furnishing the most powerful weapons of defence; the fore legs being nearly twice the length of the hind ones. Another peculiarity in this animal is that, differing from other mammals which have seven cervical vertebræ, or neck-bones, it forms an exception to this otherwise universal rule, in having nine.

So anomalous did the great naturalist Cuvier consider this animal, that he says, "if we consider the sloths in the relations which they bear to other animals, the general laws of organization at present existing apply so little to their structure, the different parts of their body seem so completely contradictory of those laws of co-existence which we have found established in the rest of the animal kingdom, that we might be almost tempted to consider them as the remains of a former order of things, the living relics of that precedent nature of which we are obliged to seek the other ruins beneath the earth, and that they escaped, by some miracle, the catastrophe which destroyed their contemporary species."

The valuable observations of Mr. Waterton, a re-

ANT-EATER AND SLOTH.

cent traveller, have at length dissipated the obscurity which so long prevailed on this subject, and have shown, in this instance, as in all others, that every modification in nature is adapted to a wise and useful end; and that deformity and imperfection appear only when from our own imperfect knowledge we fail to discover the adaptation of organic structure to the habits and economy of particular beings.

The apparent anomalies in the structure and habits of the sloth are thus satisfactorily explained by Mr. Waterton, in his *Wanderings in South America*. "The sloth," says this traveller, "in its wild state, spends its whole life in the trees, and never leaves them but through force or accident; and what is more extraordinary, travels, not *upon* the branches, like the squirrel and monkey, *but under them*. He moves suspended from the branch; he rests suspended from the branch, and he sleeps suspended from the branch. Hence his seemingly imperfect composition is at once accounted for; and, in lieu of the sloth leading a painful life, and entailing a miserable existence upon its progeny, it is but fair to conclude that it just enjoys life as much as other animals, and that its extraordinary formation and singular habits are but further proofs to engage us to admire the wonderful works of Omnipotence." This creature usually travels in windy weather, because then the branches of neighbouring trees becoming interwoven, it can pass from tree to tree with greater safety, and move at a good round pace. On the ground it appears but a mass of deformity.

The sloth brings forth and suckles her young like ordinary quadrupeds. The young one remains chiefly

at the *mammæ*, or breasts of its mother, until able to shift for itself. Sloths are only found in the most gloomy and retired tropical forests of South America. The natives regard the flesh of this animal as good eating.

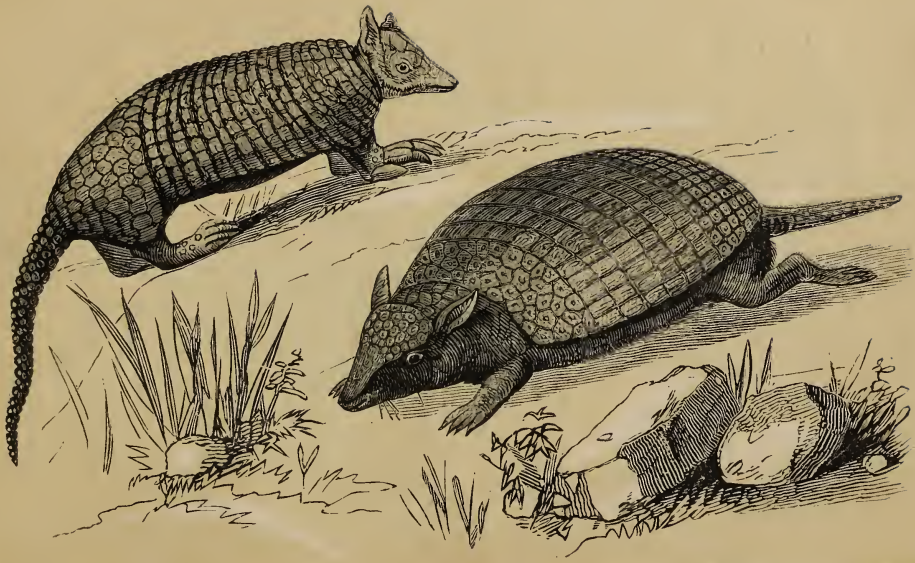
There is another variety called UNAU, which so nearly resembles the creature just described, that no farther notice seems necessary.

The ANT-EATER (*Myrmecophaga jubata.*) South America is distinguished above all other countries for the number and beauty of its birds, and the multitude, variety, and size of its insects and reptiles; to which may be added the singularity of many of its quadrupeds. In the last category, surely, may be reckoned the strange family of the ant-eaters, varying in size, though much the same in habits. The great ant-eater is chiefly found in Brazil and Guiana; but animals of the same kind are located in Ceylon and southern Africa.

This extraordinary creature, when full grown, is about four feet in length, exclusive of the tail, which is two and-a-half. The snout, which is of a cylindrical form, is of great length, serving as a sheath to its long and slender tongue, which lies folded double in the mouth. Thrusting the tongue into an ant-hill, it quickly becomes loaded with its prey; and thus furnishes the animal with the means of subsistence. Its legs are so strong that few animals, can extricate themselves from its gripe; its obstinacy also is so great, that rather than let its adversary escape it will itself perish.

The motion of the ant-eater on land is slow, but in the water it is an expert and rapid swimmer.

THE MANIS.



ARMADILLOS.

Its flesh, though eaten by the natives, has a strong disagreeable taste.

THE MANIS.

(Manis Pentadactyla.)

The singular animal now to be noticed may be regarded as the connecting link in the chain of beings between quadrupeds and reptiles, being often called the *scaly lizard*. It is chiefly found in the Indian isles. Ants are its food.

Its length is about eight feet, including the tail, which is four feet. All the upper parts of the body are closely covered with scales of different sizes, which the creature can erect at pleasure. The moment an enemy approaches, it rolls itself up like a hedgehog, and thus bids defiance to its fiercest foes; the tiger, panther, and leopard being kept at bay. Its motions are slow.

The habits of all the ant-eaters are but little known, since, avoiding mankind, they live in obscure retreats,—woods, and marshy places.

The Armadillos (*Dasypus*), form another singular family among South American animals. They are covered with a strong crust, or shell, consisting of a number of flexible bands. These bands are not unlike those in the tail of a lobster, giving way to the motions of the animal. In some there are but three bands, in others six, eight, nine, or twelve, respectively. Those having only three bands appear to be more secure than the others, possessing the

capability of concealing their entire body like the hedgehog.

These creatures burrow deeply in the ground, taking their food chiefly during the night, and feeding upon roots, fruits, and vegetables. When hunted they run to their holes, whence they are dislodged with considerable difficulty. Their general habits appear to be harmless and unoffending.

In February, 1831, the armadillos in the Zoological Gardens, Regent's-park, which are of the nine-banded kind, were found to have two young ones, the female having previously made a nest of straw as closely as she could to a pipe that conveyed warm water round the house where she was. These cubs were quite blind, and about four inches from head to tail. The male was immediately removed; but before the young were discovered it was supposed that he had injured one of them, since it died the day after its birth. The other appeared quite well, and able to suck, but on the third day that also died. The mother, probably, in consequence of being disturbed, had bitten it on several parts of the head.

Armadillos, it is believed, bring forth but once in a year, and then only two, the mother having but four teats. D'Azara, however, asserts that one species brings forth from seven to twelve at a birth. The fact is, that the habits of these peculiar creatures are but imperfectly known.

THE NEW-HOLLAND HEDGE-HOG.

(Echidna Hystrix.)

This animal may well be termed a *lusus naturæ*, or prodigy in nature, being one of the last links among quadrupeds, and an approximation towards birds. Its muzzle or beak is slender and elongated, its small mouth being furnished with a prehensile tongue for taking ants, its ordinary food, but is without teeth. The feet are short, adapted for digging, each foot armed with five long claws. The tail is short; the body covered with spines much resembling feathers, and of a dirty white colour, but black at their extremity, the hair beneath being of a chesnut colour.

This truly singular creature is about the size of the common hedgehog, burrowing during the dry season, but coming out during the rains. It has the power of rolling itself up in the event of danger. These creatures often appear very drowsy, bordering upon suspended animation.

Lieutenant Breton kept an echidna for some time during his stay in New Holland, but it died on its passage to England. Its food, in captivity, was chiefly chopped egg, with liver, meat, and water.

The habitat of the echidna is New Holland and Van Diemen's Land. It is, however, rarely to be met with.

The Ornithorhynchus or Duck-bill, is so extraordinary an animal, that when specimens of it first reached this country our naturalists doubted whether it were not a production of art or fraud, rather than of nature. The creature has now been

THE ELEPHANT

THE ELEPHANT.

(Elephas.)

"*All thy garments smell of myrrh, and aloes, and cassia: out of the* IVORY *palaces, whereby they have made thee glad.*"—PSALM, xlv., 8.

'*And to the end they might provoke the* ELEPHANTS *to fight, they shewed them the blood of grapes and mulberries.*"—1 MACCABEES, chap. vi., 34.

THE ELEPHANT is no where mentioned in the Bible. The nearest approach to his history is in the use of the word *Ivory*, which is known to be obtained from the tusks of this animal. Solomon, it would seem, sent ships to Tharshish (India), which, on their return, brought ivory to Judea. "For the king had at sea the navy of Tharshish, with the navy of Hiram. Once in three years came the navy of Tharshish, bringing gold, and silver, and *ivory*." 1 Kings, x., 22; 2 Chron., ix., 21. The Hebrew word employed for ivory is *shenhavhim*, literally signifying *dumb brute's tooth*. The word *ivory* occurs again 1 Kings, x., 18, where, in the Hebrew, the word translated *ivory* is *shen gedol, great tooth*, obviously referring to the state in which the material was imported, *i.e.* as a whole tusk. In the Apocrypha the word *Elephant* occurs twice. Many critics maintain that the word *Behemoth*, mentioned in the book of Job referred to the elephant; but by a greater number this appellation has been thought to describe the hippopotamus, of which more hereafter.

very dexterously stripping off the skin with their fore-feet and teeth.

The body of this animal is somewhat smaller than that of the hog, and covered with strong bristles which, when irritated, it can erect like the hedgehog. It has a pouch in the posterior part of the body resembling the stinkards, and which must be removed immediately on the animal being killed, or the flesh will become utterly unfit to be eaten. The peccary is comparatively a slow breeder, having but two at a birth.

The Babiroussa (*Sus babyroussa*), is larger than the peccary, and furnished with four large tusks, two of which proceed from the lower jaw upwards, standing out of the sockets about eight inches; the two others rise up like horns on the outside of the upper jaw just above the nose, and extend in a curve above the eyes, almost touching the forehead, and are twelve inches in length. These tusks are of the most beautiful ivory.

These animals, when closely pursued, will plunge into the sea, and hereby escape; or will defend themselves with their under tusks most resolutely, growling frightfully. They feed entirely on vegetables.

THE TAPIR.

(Tapir Americanus.)

Among the singular animals of the Zoological Gardens the tapir holds a distinguished place, being a compound of the hog, the hippopotamus, and the

THE TAPIR.

elephant. Its general habits are essentially like those of the first of these; the roughness of its almost hairless coat, and its fondness for the water, associate it with the second; while its rudimentary proboscis, or long snout, offers an approach to the third animal. Its flexible snout may be considered its most distinctive feature. It is formed by the nose and upper lip being continued, and forming a sort of proboscis of considerable power. The legs are thick and strong, the toes furnished with hard rounded hoofs, the tail being short.

The tapir is found chiefly in the warmer parts of South America. It is a solitary animal, spending the day concealed in the most sequestered and umbrageous places, going out at night in search of vegetable food, on which alone it subsists. Its mode of escape from the larger animals is peculiar. Conscious of the impervious nature of its hide, the creature will rush through the thickest and most entangled part of the wood, forcing its way through every obstacle with its head; the pursuers soon become wearied with this resistance, and being, probably, lacerated also, give up the chase.

The animal soon becomes domesticated when taken young, being naturally mild and inoffensive. Aggressive war it ever avoids, flying from every appearance of danger. Its skin, of which the Indians make bucklers, is remarkably thick, and when dried is hard enough to resist the impression of an arrow. The natives eat its flesh, which is pronounced to be extremely palatable.

careless nurse; for if, by any chance, her young one should be separated from her only for a couple of days, she never recognises it again, though solicited so to do by its plaintive cries.

About the year 1810 a very fine elephant was brought to England, and purchased by Mr. Harris, for a pantomimic procession at Covent-garden theatre; but in 1814, became the property of Mr. Cross, the proprietor of a menagerie over Exeter-change, in the Strand, now happily, amongst the improvements of western London, removed. This creature was of monstrous size, and strong sensitive development, performing various interesting little feats at the command of its keeper. In 1821 it first showed symptoms of insubordination, which excited the alarm of those that were about it. This gradually, at particular seasons, increased, until the 26th of February, 1827, when the monster-creature became completely furious. Attempts were made to relieve it, first by administering potent medicine, and afterwards by poison; these the cunning animal only partially took, but without effect; other parts it indignantly refused, trampling the same under its massy feet. The infuriated elephant continued to rage with reiterated strength, partially destroying the strong den in which it was confined, and thereby putting the lives of all present, and the very building itself, in the utmost jeopardy. A resort to fire-arms was believed to be the only remedy. Poor Chunee, for such was the creature's name, received volley after volley from the rifles, on which he flew round the den with the speed of a race-horse, uttering frightful yells and screams. This continued for a full hour, when, nearly two hun-

THE HIPPOPOTAMUS.

dred balls having entered the body of the maddened brute, Chunee sunk on his knees in the agonies of death. The dead carcase was then, with great difficulty, conveyed to the house of Mr. Joshua Brookes, an eminent surgeon in Blenheim-street, Oxford-street, where this monster was kept for dissection, until the whole neighbourhood became inconvenienced by the horrid effluvia which proceeded from such an immense mass of corruption. The police interfered; but ultimately the entire skeleton of the renowned Chunee was prepared, and safely deposited in the Museum of the Royal College of Surgeons, Lincoln's-inn-fields, where it may now be seen.

THE HIPPOPOTAMUS.

HEB. *Behemoty.*—(Hippopotamus amphibius.)—ENG. *The Beast.*

"*Behold now* BEHEMOTH, *which I made with thee; he eateth grass as an ox. Lo now, his strength is in his loins, and his force is in the navel of his belly. He moveth his tail like a cedar: the sinews of his thighs are wrapped together. His bones are as strong pieces of brass; his bones are like bars of iron. He is the chief of the ways of God; he who made him hath furnished him with his sword. Surely the mountains bring him forth food, where all the beasts of the field play. He lieth under the shady trees, in the covert of the reed, and fens. The shady trees cover him with their shadow; the willows of the brook compass him about. Behold should the river swell, he hasteneth not; he is fearless should even the Jordan come up to his mouth. Who can take him openly? Or draw a cord through his nose?*"—JOB, chap. xl., 15—24. (Dr. Conquest's version.)

THE sublimity of the book of Job cannot be too highly praised. The most ancient book extant; the

earliest specimen of poetry in the world; carrying with it the impress of its divine origin. Some modern critics would refer the above magnificent quotation to some extinct genus—the *mastadon*, or the *mammoth*, or the *iguanodon*. We by no means agree to any such interpretation; and we believe that our readers, after comparing the above-quoted text, with the description of the hippopotamus in his native wilds, as mentioned by modern travellers, will agree with us in that opinion. We must, however, caution our readers not to identify the above splendid description of an animal, with the ugly, pig-like, and insignificant *punchinello*, now exhibiting in the Zoological Gardens, Regent's-park. (See, for a correct portrait, our Engraving.) This animal, presented to the society by the Viceroy of Egypt, is, in truth, a hippopotamus, and therefore deserving the attention which it has received. But it must be recollected that it is but a mere *cub*, taken prematurely from its dam and its native wilds, and imported to a climate where its innate powers can never be fully developed.

The mighty *behemoth*, hippopotamus, or river-horse, as the name signifies, is, so far as our present knowledge goes, confined in its geographical distribution, to the great rivers and lakes of Africa. Formerly it was to be found in the neighbourhood of Damietta, or within the delta of the Nile; at present it is never seen within the limits of Lower Egypt.

It is strictly a granivorous animal, in no case ever taking fish, as ancient authors have asserted. The dental formula, and the contents of the stomach when dissected, alike prove that it is not carnivorous.

The hippopotamus has thirty-eight teeth; eight incisor, four canine, and twenty-six molar. It must, however, be borne in mind, that the teeth in this animal are subject to great variations, according to its age. The canine teeth are enormous tusks, sharpened into a chisel-like edge, serving for uprooting, or cutting down, large shrubs or trees. They are likewise a means of defence. The skeleton presents an osseous combination of the ox and the hog. The bones are all massy, and their articulation singularly firm and secure. The *vertebræ* of the neck, back, loins, and tail, amount to forty-seven. Throughout the whole frame strength is eminently predominant. Each foot has five toes, terminating in a kind of hoof.

The reference made by the sacred poet to the belly of this gigantic quadruped is at once beautiful and accurate, its body being, like that of the rhinoceros, girt with a very rough and thick belt. The jaws are, besides, so constructed that the vegetable masses taken into the mouth and transmitted into the stomach can be little more than bruised, requiring great elaboration in the stomach, before the nutritive matter can be extracted. The stomach of a full-grown hippopotamus is very capacious, containing five or six bushels of food. Mr. Burchell, when travelling in South Africa, tells us that from the stomach and intestines of a hippopotamus, only half-grown, he extracted at least three bushels of half-chewed vegetables. These animals usually feed during the night, and in large herds, often desolating whole fields of corn.

The female's period of gestation is, it is believed, three months, the birth taking place on land. One

of these animals, going up a river to calve, was watched by a party who wished to secure the young, but though the mother was shot dead immediately after the birth, and the Hottentots, who had been employed for the purpose, instantly rushed forward, the calf saved itself by taking to the water.

The amazing strength of the hippopotamus becomes even more apparent in the water than on land, bounding, capering, and diving therein, with wondrous dexterity. These creatures, like seals, have the capability of closing the nostrils when under water.

Notwithstanding the prodigious bulk and strength of the hippopotamus, it is by nature quiet and inaggressive. When attacked or wounded it becomes a perfect fury. Instances are not wanting in which a boat has been sunk by a single gripe of this animal, or swamped by rushing under it, and uplifting the same with its back.

The hippopotamus, under the Romans, was occasionally exhibited at Rome.

THE WILD BOAR.

In Hebrew, *Chazer*.—(Sus aper.)—In English, *The Returner*.

"*The* boar (swine) *out of the wood doth waste it*."—Psalm lxxx., 13.

The filthy habits of swine are proverbial. One sacred writer says:—"It has happened unto them according to the true proverb, the dog is turned to his own vomit again; and the sow (swine), that was washed, to her wallowing in the mire." 2 Pet. ii., 22. Horace cites the same proverb, when speaking of the

THE WILD BOAR

travels of Ulysses, and says, that if he had been conquered by the charms of Circe,

"Vixisset canis immundus, vel amica luto sus."
He had lived like an impure dog, or a Sow, fond of the mire.

The wild boar may be considered as the parent stock of our domestic hog. He is much smaller, but stronger and fiercer than swine when in captivity. His snout is also longer; but the ears are comparatively short. The tusks form a most formidable weapon: his general habits being fierce and savage. He runs with earnestness and speed for a considerable distance. When at length he becomes weary, he will go no further, but battles it out with his pursuers to the last extremity. Woe be either to man, or horse, or dog, that he attack in close combat.

In confirmation of the truth of the text at the beginning of this article, we may quote a passage from Hartley's *Researches in Greece and the Levant*. "My friend," observes the writer, "was proceeding, in the dusk of the evening, from Constantinople to Theraxia. Passing a vineyard he observed an animal of large size rushing forth from among the vines. 'Wild boar! wild boar!' exclaimed a Greek in the company. 'What has the wild boar to do with the vineyards?' was the inquiry. 'Oh!' was the reply, ''tis the custom of the wild boars to frequent the vineyards and devour the grapes.'" The abode of wild boars is in the woods, from whence they rush out and ravage the fields, plantations, gardens, and vineyards. What they eat is of small consequence, compared with the havoc which they occasion by trampling with their feet, tearing up roots, breaking

the branches, and lacerating the stem with their tusks. In one night a fine garden or vineyard may be completely ruined.

The hog was not merely classed by the Jews among unclean animals—they would not so much as pronounce its name, but called it "the strange thing." No wonder, then, if the Saviour, for a flagrant breach of the law of Moses, should permit a whole herd of swine to run down a steep place into the sea, and perish in the water. Matt. viii., 32.

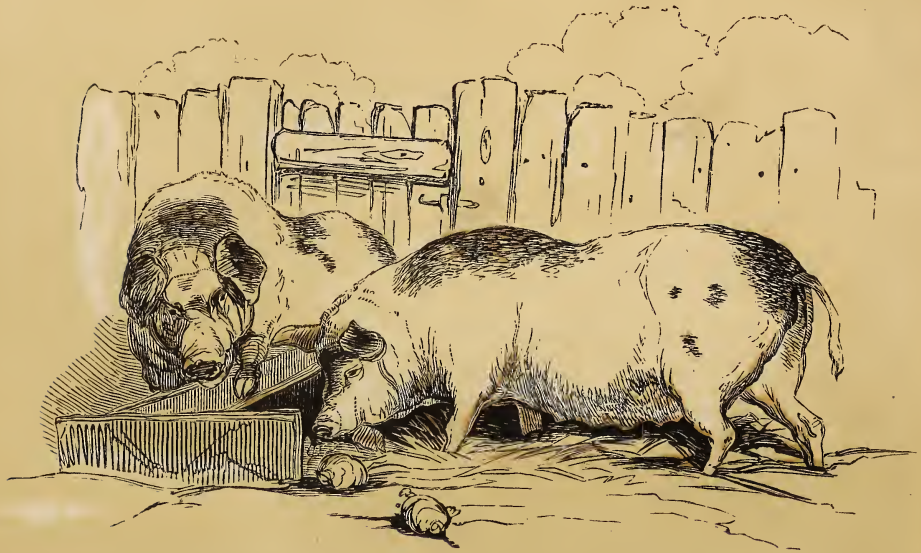
DOMESTIC SWINE.

(Sus scrofa.)

Swine are so much improved by domestication that they scarcely appear like the descendants of the fierce denizens of the forest whence they received their origin. In captivity they are of all colours, although black, and black and white, more generally prevail. In their food they are truly omnivorous, taking alike the refuse of the field, the garden, the barn, or the kitchen. Miser-like, swine are of little value till after death.

The flesh of the hog, though never very wholesome, especially to those who lead a sedentary life, is an article of great importance to a commercial country, since it takes salt better than any other kind of meat, and in consequence forms a principal part of the provisions for the navy.

The domestic sow is a prolific breeder, having a brood generally twice a-year, of from ten to twenty



THE BOAR AND SOW.

at a litter. She goes four months with young. The sow has a great propensity to devour her newly-born offspring. The boar will infallibly do so if not prevented. No animals make better sailors than swine, never being sick in the roughest weather. A few breeding-sows are, therefore, quite a treasure to the crew of a south-sea whaler, furnishing a supply of fresh meat, without the necessity of going on shore.

THE PECCARY.

(Sus tajacu.)

The Peccary, or Mexican hog, inhabiting the hotter parts of South America, does not essentially differ from the animals just described, and yet there is some mystic line of demarcation which keeps each class completely distinct. No instance has ever been known of a hybrid race. In their teeth they slightly differ from the common hog, having only thirty-eight, whereas the common breed have forty-four. Neither are peccaries fond of wallowing in the mire; their habits in this respect being much more cleanly than their congeners.

Being gregarious, and assisting each other in attacks made upon their enemies, they become dangerous, both to the traveller and the hunter. The only means of escape is to climb into a tree, until time or hunger compels the waiting and incensed brutes to make a retreat. They principally feed on fruits and roots. They are expert serpent-hunters,

very dexterously stripping off the skin with their fore-feet and teeth.

The body of this animal is somewhat smaller than that of the hog, and covered with strong bristles which, when irritated, it can erect like the hedgehog. It has a pouch in the posterior part of the body resembling the stinkards, and which must be removed immediately on the animal being killed, or the flesh will become utterly unfit to be eaten. The peccary is comparatively a slow breeder, having but two at a birth.

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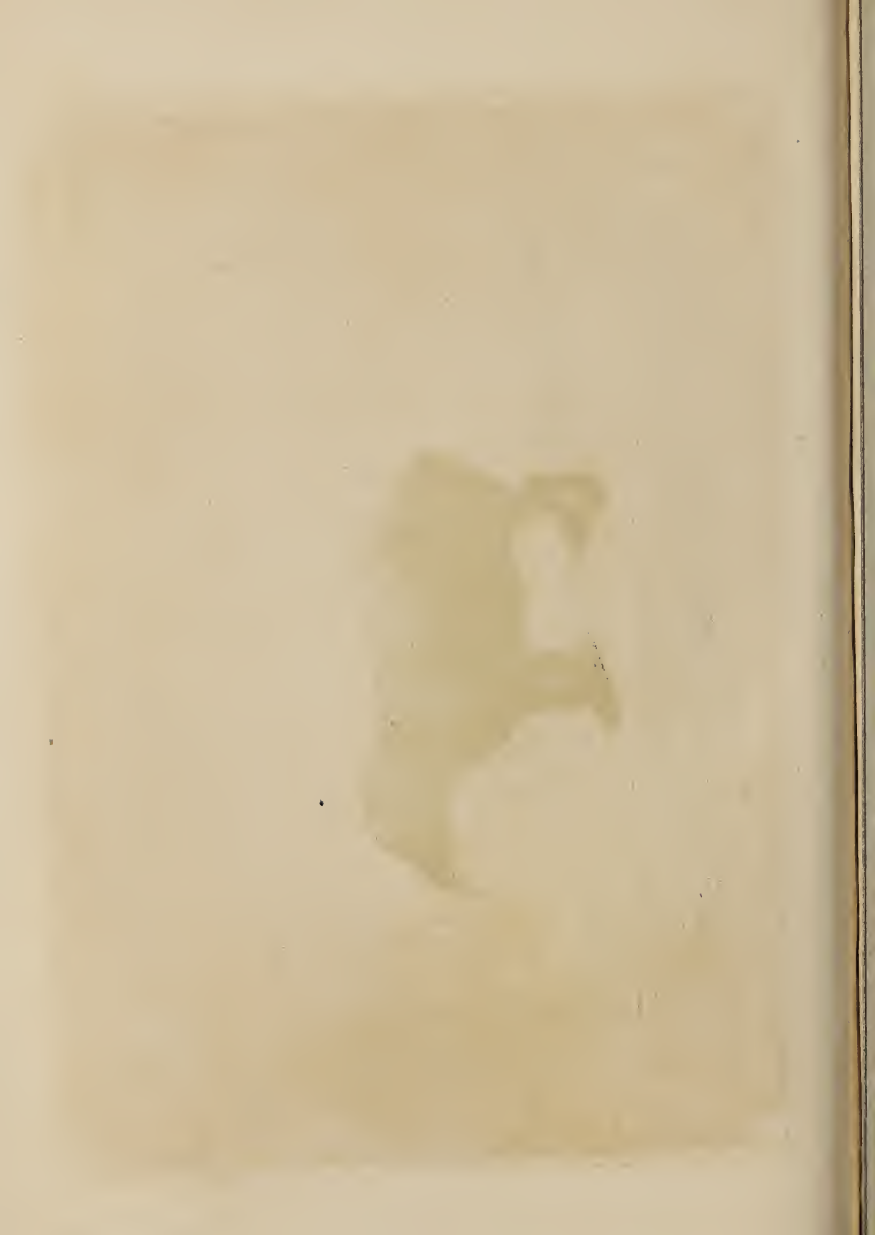

elephant. Its general habits are essentially like those of the first of these; the roughness of its almost hairless coat, and its fondness for the water, associate it with the second; while its rudimentary proboscis, or long snout, offers an approach to the third animal. Its flexible snout may be considered its most distinctive feature. It is formed by the nose and upper lip being continued, and forming a sort of proboscis of considerable power. The legs are thick and strong, the toes furnished with hard rounded hoofs, the tail being short.

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The animal soon becomes domesticated when taken young, being naturally mild and inoffensive. Aggressive war it ever avoids, flying from every appearance of danger. Its skin, of which the Indians make bucklers, is remarkably thick, and when dried is hard enough to resist the impression of an arrow. The natives eat its flesh, which is pronounced to be extremely palatable.

THE RHINOCEROS.

In Heb. *Reiam.*—(Rhinoceros unicornis.)—In Eng. *The Exalted.*

"*Will the* UNICORN *be willing to serve thee, or abide by thy crib? Canst thou bind the* UNICORN *with his band in the furrow? or will he harrow the valleys after thee?*"—Job, chap. xxxix., 9, 10.

The Rhinoceros is, doubtless, the Unicorn of scripture, and the source of many fables recorded of him by ancient writers. He is mentioned nine times by the sacred writers, always being referred to as a model of strength and untractableness. Second only to the elephant in size, he is altogether unlike him from his indocility. No animal appears less aggressive than the rhinoceros, none less fearful of attack, or better prepared for defence. The length of an adult is about twelve feet, which is likewise the size of the girth. The nose is armed with a most formidable weapon, peculiar to this creature, being a very hard and solid horn, with which he can rip up the body of his largest and fiercest enemy. The tiger, with all his ferocity, seldom attacks him. The hide is likewise so hard that the claws of the tiger make little impression upon it; it will turn the edge of a scimitar, or resist a ball from the rifle.

The legs of the rhinoceros are short and thick; the head large; the ears long and erect; the eyes small and dull: the upper lip is so long that it overhangs the lower one, and being capable of great extension gives the animal considerable facility in moving it from side to side twisting it round a stick, collecting

THE RHINOCEROS.

food, or seizing anything which it would convey to its mouth.

Its chief habitat is India beyond the Ganges, but no where does it abound. Its habits are solitary, living in moist and marshy places, and seldom going far from the banks of a river. Like the hog, it is fond of wallowing in the mire.

The female produces but one at a time, which is long in becoming fully developed. The hunting of this huge beast is attended with considerable danger, his scent being so acute that his pursuers find it safe to avoid being to the windward of him, and not to attack him until he lies down to sleep.

The rhinoceros feeds on the coarsest herbs, even preferring thistles and shrubs to soft and more delicate pasturage. It is said to be very fond of the sugar-cane, and eats all kinds of grain. From the peculiar construction of his eyes, the rhinoceros can see only what is immediately before him. When he pursues any object he proceeds always in a direct line, overturning every obstruction, uprooting trees, raising stones, and throwing them behind him to a considerable distance, and without any apparent effort. This herculean animal was known to the Romans in very early times, and a knowledge of it has been handed down to us in some of the works of that celebrated people.

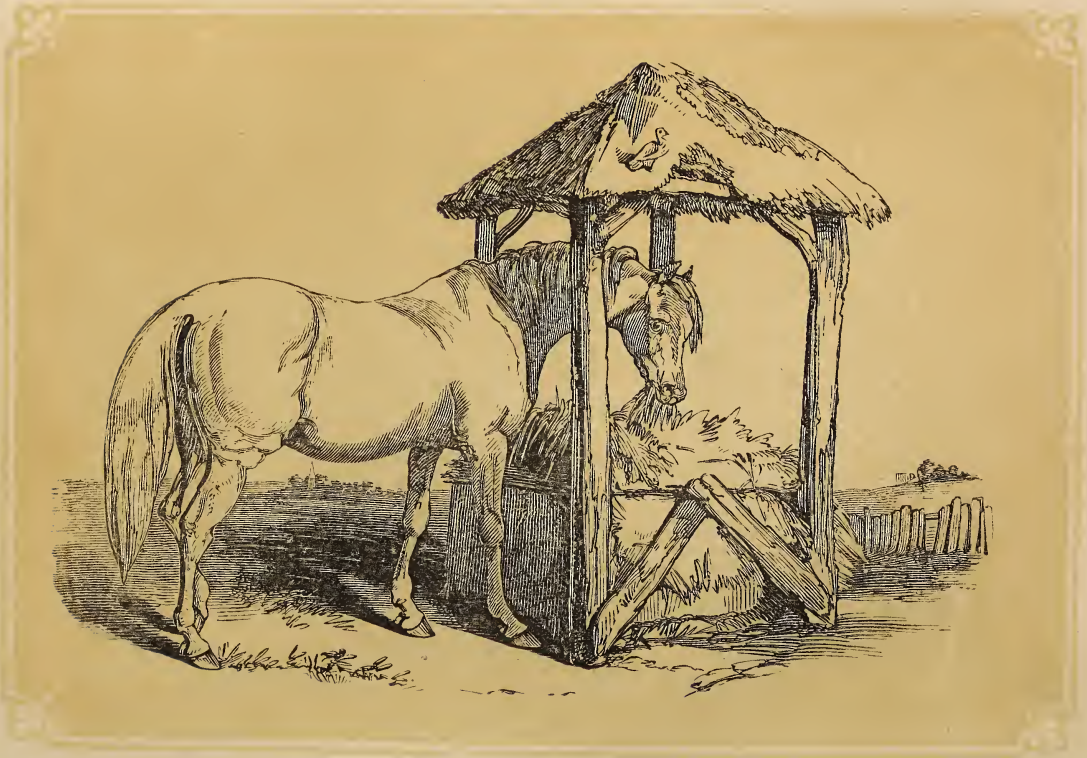
Ferocious, carnivorous, and extremely wild, the rhinoceros well answers to the description given of him by Job in the passage above quoted, being *untameable, swift,* and *immensely strong.*

THE HORSE.

In Hebrew, *Sus.*—(Equus caballus.)—**In English**, *The Rulea.*

"*Hast thou given the* HORSE *strength? hast thou clothed his neck with thunder? Canst thou make him leap as a grasshopper? the glory of his nostrils is terrible. He paweth in the valley, and rejoiceth in his strength: he goeth on to meet the armed men. He mocketh at fear, and is not affrighted; neither turneth he back from the sword. The quiver rattleth against him, the glittering spear and the shield. He swalloweth the ground with fierceness and rage: he standeth not still at the sound of the trumpet. At the blast of the trumpets he saith, ah! ha! And he smelleth the battle afar off, the thunder of the captains, and the shoutings.*"—Job, chap. xxxix., 19—25.—(Dr. Conquest's version.)

This magnificent passage of Hebrew poetry has been so often commented upon that we must content ourselves with one short passage in explanation of it, from the eloquent Rollin—"Every word of this," he observes, "would merit an explication in order to display the beauties of it; but I shall take notice only of the latter part, which gives a kind of understanding and speech to the horse. Armies are a long time before they are set in battle array; and are sometimes a great while in view of one another without moving. All the motions are marked by particular signals; and the soldiers are appointed to perform their various duties by the sound of a trumpet. This slowness makes the horse impatient. He is ready at the first sound of the trumpet. He is very impatient that the army must so often have notice given to it. He murmurs against all these delays, and not being able to continue quietly in his



THE HORSE.

place, nor to disobey orders, he strikes the ground perpetually with his hoof; and complains in this way that the warriors lose their time in gazing upon one another."

"He swalloweth the ground with fierceness and rage. In his impatience he considereth as nothing all such signals as are not decisive, and which only point out some circumstances to which he is not attentive; neither believeth he that it is the sound of the trumpet. But when it is earnest, and the last blast calls to battle, then the whole countenance of the horse is changed."

"One would conclude that he distinguishes by his smell that the battle is about to begin, and that he heard the orders of the general distinctly, and answers the confused cry of the army by a noise that discovers his joy and courage. He saith among the trumpets, ha, ha; and he smelleth the battle afar off, the thunder of the captains and the shoutings!" Belles Lettres, t. i. p. 645.

Whenever the horse may have lost his liberty, man, at that epoch, achieved a great conquest. No attendant upon man is more subservient to his owner's will (the dog only excepted), than the horse. He is generous, docile, spirited, yet obedient; alike adapted to the purposes of pleasure and convenience; his active service being available in the draught, the field, or the race. It is only to be regretted that so useful and obedient a servant, should ever have a bad master; yet it must be confessed, that the excellent qualities of the horse are often shamefully abused, in most unnecessary exertions, urged upon him by unfeeling folly.

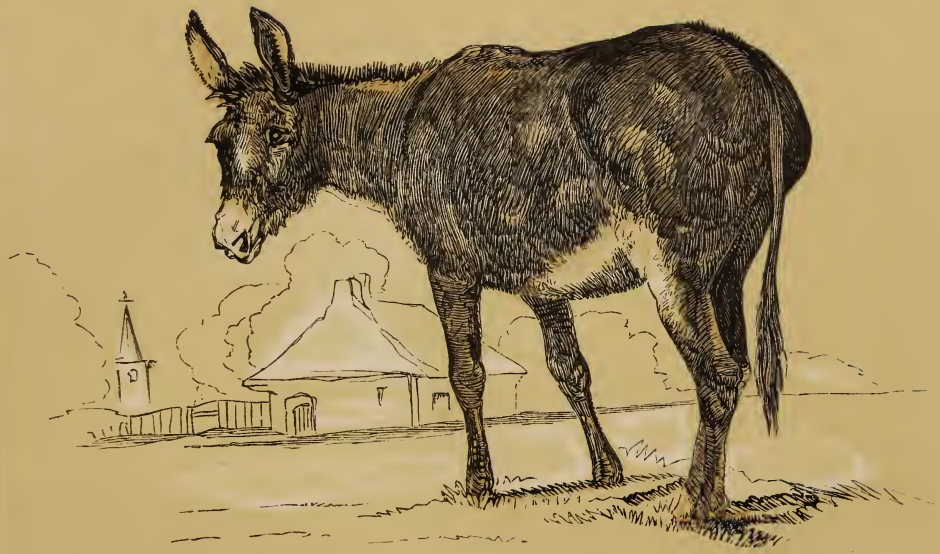
To enter into details is unnecessary. Suffice it to say that the mare goes with foal rather more than eleven months, and continues to breed till the age of sixteen, or eighteen. The horse seldom lives more than thirty years.

THE RACE HORSE.

England has long been distinguished for its horses and its dogs. In the breeding of horses, generally, we have long been famous. By great attention, a judicious mixture of several kinds, and superior skill in management, the English race-horse excels those of the whole world. For supporting a continuance of violent exertion, and for swiftness, our race-horse yields the palm to none.

Childers is acknowledged to have been the swiftest horse ever bred in the world. He has gone eighty-two feet and a half in a second, or nearly a mile in a minute; he has run round the course of Newmarket, which is little less than four miles, in six minutes and forty seconds. Childers was never beaten. His sire was an Arabian.

Eclipse, since the time of Childers, excelled all other horses for swiftness. The mechanism of his frame was almost perfect; and yet he was neither handsome, or well proportioned. Compared with a presumed correct table of the geometrical proportions of the horse, Eclipse measured in height one-seventh more than he ought, and his neck was one-third too long. A perpendicular line falling from the stifle of a



THE ASS.

horse should touch the toe. This line in Eclipse touched the ground at the distance of half a head before the toe. Again, the distance from the elbow to the bend of the knee should be the same as from the bend of the knee to the ground. The former, in Eclipse, was two-parts of a head longer than the latter. These were some of the remarkable differences between the presumed standard of proportions in a well-formed horse, and the horse of the greatest celebrity ever bred in England.

The excellence of Eclipse in speed, blood, pedigree, and progeny, will be transmitted, perhaps, to the end of time. This far-famed racer was foaled during the great eclipse of 1763, whence he derived his name. Eclipse died at Canons, near Edgeware, in 1789, in the twenty-sixth year of his age. He was never beaten on the *turf*, winning everything for which he ran. It was thought that the size of the animal's heart greatly enabled him to do what he did, weighing no less than thirteen pounds.

THE ASS.

(Equus Asinus.)

In Hebrew, *Chamor*.—In English, *The Burthen-bearer*.

"*Rejoice greatly, O daughter of Zion; shout, O daughter of Jerusalem: behold, thy king cometh unto thee: he is just, and having salvation: lowly, and riding upon an* ass, *and upon a colt the foal of an* ass."—Zech., ix., 9.

The Ass is one of the oldest servants of man. Two thousand years prior to the Christian era, when Abraham went into Egypt, he possessed asses in a

domesticated state. "He had," says the sacred historian, "sheep, and oxen, and he-asses, and men-servants, and maid-servants, and she-asses, and camels." Gen. xii. 16. From this statement it would appear that horses in a domestic state were, at this early period, unknown to the Egyptians.

Whatever the ass might have been in ancient times, or whatever he may be amongst eastern nations, with us, he is an animal at once oppressed and neglected. Consigned to the tender mercies of the costermonger, he endures all kinds of privations; coarse and scanty food, neglect in being groomed, burdens of undue weight, journeys of improper length, with frequent exposure to wet and cold; these make him a dejected and crest-fallen creature. He is naturally less swift than the horse, and more sluggish, perverse, and untractable. Still, against a stubborn nature, and innumerable wrongs, the ass possesses many redeeming and angel-like properties. He is proverbially gentle, patient, persevering, temperate, and cleanly. He may be cold in his friendship, yet is not insensible to the hand of kindness. Though frugal in his diet, the ass, notwithstanding, "knows his master's crib." Coarse fare is rather grateful to him than the reverse, the plantain and the thistle being amongst his favourite food. He drinks, if practicable, from the clearest brooks, and pertinaciously refuses water when offered him in a greasy or dirty vessel. The ass greatly dislikes wetting his feet; and even when loaded, will deliberately turn aside, to avoid the dirtier parts of the road. In the midst of filthiness and neglect he is never infested with vermin.

A warm climate suits this animal much better than

THE WILD ASS.

a cold one, and which is, probably, the reason why in more southern countries the ass becomes larger and stronger.

The she-ass goes eleven months with young, and seldom has more than one at a time.

THE WILD ASS.

In Heb., *Para.*—(Asinus hemionus.)—In Eng., *The Runner.*

"*Who hath sent out the* WILD ASS *free? or who hath loosed the bands of the* WILD ASS? *Whose house I have made the wilderness, and the barren land his dwellings. He scorneth the multitude of the city, neither regardeth he the crying of the driver. The range of the mountains is his pasture, and he searcheth after every green thing.*"—Job, xxxix., 5—8.

A beautiful and original description of a wild animal, despising the restraints of man. The prophet's account of the same creature is no less descriptive of its native wildness. "A wild ass, used to the wilderness, that snuffeth up the wind at her pleasure, in her occasion who can turn her away? All they that seek her will not weary themselves; in her month they shall find her." Jer. ii. 24.

The wild ass is taller and more compact than the domestic ass. Its head is more elevated, and a dusky woolly mane peculiarly distinguishes it. The general colour is silvery white. A stripe of waved, coffee-coloured, bushy hair, runs along the top of the back from the mane to the tail. In summer the hair is very smooth and silky, but in winter soft, silky, and waving.

These animals associate in herds, under a leader, and are very shy. They inhabit mountainous regions and deserts, their geographical range being considerable. They are found in considerable numbers in western Asia and northern Africa. Since the conquest of South America by the Spaniards, they have spread over that vast continent, and in large numbers.

THE MULE.

In Heb. *Pereh.*—(Equus mulus.)—In Eng. *The Separated-one.*

"*Then all the king's sons arose, and every man got him up upon his* MULE, *and fled.*"—2 Samuel, xiii., 29.

The Mule is a hybrid between the horse and ass, and though known to the Jews in the time of David, the above text being the first time that it occurs in the sacred volume, yet it could not be bred by the Jews, since there is an express law which prohibits such a practice. See Levit. xix 19. The barrenness of the mule furnishes an indisputable proof that the two species are perfectly distinct. Nature hereby showing an abhorrence against such heterogeneous productions, and by some unknown law preserves the original perfection and identity of each species.

In southern Europe, especially in Spain, the mule is a noble and most useful animal, being alike employed for the saddle, the draught, or the burden. Mules are remarkably sure-footed, and hence are to be trusted in descending the frightful precipices of the Alps or the Andes. When they come to the

THE MULE.

THE ZEBRA

edge of one of these precipices they stop, as if to survey the danger that lies before them, viewing, and even snorting at the perils which they have to encounter. Having thus prepared themselves for the descent, they place their forefeet in a posture as if they were stopping themselves; they then put also their hindfeet together, but a little forward, as if they were going to lie down. In this attitude they slide down with the swiftness of a meteor. Such is their address that in their swiftest motion they follow exactly the different windings of the road. Seldom does any accident occur if the rider keeps himself fast on the saddle; the least motion might prove fatal.

The muleteer is accustomed to drive his mules through the public streets without any bridle, simply calling to them by their names, and to which they attend with wonderful precision.

THE ZEBRA.

(Asinus Zebra.)

The Zebra is, perhaps, of all quadrupeds the best made, and the most beautifully clad by the hand of nature. To the figure and graces of the horse, it adds the light elegance of the stag, and the black and white bands with which its body is ornamented are arranged with such wonderful symmetry, that we might almost be disposed to imagine that the rule and compass had been employed in their formation. These alternate bands are narrow, parallel, and ex-

actly separated; they extend not only over the body, but the head, thighs, and legs, and even over the ears. They follow so exactly the contours of the different parts, enlarging more or less according to the development of the different muscles, and the roundness of the different forms, that they exhibit the entire figure in the most advantageous point of view. In the female these bands are alternately black and white, in the male they are black and yellow, but always of a lively and brilliant tint. They also rest upon a ground of short, fine, and copious hairs, whose lustre considerably augments the general beauty of the colours. The zebra is further distinguished from all other quadrupeds by its single and undivided hoof, round in front, very thick, and enveloping the extremity of its only apparent toe.

The habitat of this animal is chiefly in the southern parts of Africa, where whole herds of them are to be seen. Their watchfulness will suffer nothing to come near them, and their swiftness is so great that they easily leave their pursuers far behind. Hitherto their native liberty has continued unbridled; whether they are absolutely untameable future experiments must show. Those which have been brought to this country, have shewn a viciousness that renders it unsafe to approach them too familiarly; but from hence it should by no means be inferred that they are not to be domesticated. The fact is, that being natives of a country, where the rude inhabitants have regarded them simply as an article of food, no attempts have ever been made to render them serviceable in any other way.

THE CAMEL.

THE CAMEL.

In Heb. *Gamal.*—(Camelus Bactrianus.)—In Eng. *The Repayer.*

"*Nevertheless these shall ye not eat of them that chew the cud, or of them that divide the hoof: as the* CAMEL, *because he cheweth the cud, but divideth not the hoof; he is unclean unto you.*"—Leviticus, chap. xi., 4.

No class of animals more nearly approach each other in their general organization than the ruminants of which we are now to treat. The most apparent difference is that the camels, the llamas, and the chevrotains, a kind of goat, have no horns; other ruminants, of the male sex at least, having two horns more or less long, projecting from the frontal bones, and which are not found in any other family of mammals.

It seems necessary here, for the sake of our younger readers especially, that we should explain what is meant by a *ruminant,* or an animal which chews the cud. Rumination, then, or chewing the cud, is that singular faculty which this order of animals possesses of chewing the food a second time, and which is returned into the mouth after having been previously swallowed. This extraordinary anomaly is the result of the structure of their stomachs, four of which they always have. The process is highly grateful to the animal, and indispensable for fully extracting the nutritious parts of its food. The teeth, also, are formed for facilitating this process, consisting of eight incisor teeth, in the lower jaw only, twelve molar, or grinding teeth, in each jaw; and between the incisors

and molars, in some *genera*, only one or two canine teeth.

The first stomach, or paunch (*rumen*), is much the largest in the adult animal, and is slightly separated into four parts on the inside, which is covered with *papillæ*, or small pimples. Here the masses of herbage eaten by the animal, and roughly broken up by the first mastication are deposited. The herbage, in this state, passes into the second stomach, or honeycombed bag (*reticulum*.) Here the masses of food are arrested, imbibed, and compressed into small balls, which are thence returned successively into the mouth by a convulsive action of the stomach, to be re-masticated. During this operation the animal remains in a state of repose. The food having undergone the action of the molar teeth a second time, passes into the third and smallest stomach, called *manyplus*, from the numerous and broad duplicatures of its internal coat. From hence the food is transmitted into the fourth stomach (*abomasus*), which may be regarded as the true organ of digestion. The remarkable process of rumination, though absolutely necessary to be done, and requiring a considerable portion of time, yet remains, by some mysterious law, entirely under the control of the will of the animal.

The Bactrian, or two-hunched camel, besides possessing a digestive organization nearly analogous to that above described, has also a stomach, or tank, in which a large quantity of water can be deposited, serving for a supply to the animal in the event of water failing while traversing those arid deserts which it is accustomed to do.

The feet of the camel have ever excited the admiration of the physiologist, being so admirably adapted to meet the exigencies of this creature. The sole-cushions of the spreading feet are divided into two toes without being externally separated, which buoy up the whole bulk, by their expansive elasticity, from sinking in the sand, on which it advances with silent step.

The nostrils of this *ship of the desert* are, likewise, so formed that the animal can close them at pleasure, and hereby exclude the drift-sand of the parching simoom.

The countries of the Levant are the special habitat of the camel. To the Arab the camel is everything. It furnishes him with food and milk; his clothing and tents are woven from its hair, his belt and sandals are the produce of its hide, the dung affords him fuel. But the surpassing excellence of the camel consists in its capabilities of crossing desolate and frightful deserts, which the peculiar organization of this animal, and its extreme temperate habits, enable it to perform with comparative ease. The average load of a heavy, or caravan-camel, is from five to six hundred weight. Camels are broken for work at the age of four years, and nothing short of the most wanton cruelty will render them insubordinate. When once injured, however, they never forget the wrong until they have their revenge; hence the origin of their name—the re-payer.

The acute sense of smelling in the camel is truly marvellous. When, apparently, worn out by fatigue, and the whole caravan is in danger of perishing, the camel is known to break his halter, and run with

unerring certainty to a spring of water, which had otherwise escaped observation.

The female goes with young about twelve months, and has but one at a birth. The average age to which the camel arrives is about forty years. They are six years coming to maturity.

The camel was known in the remotest times as the servant of man, being often mentioned in the earlier parts of the Bible. See Genesis, xxxvii. 25; Judges, viii. 21; Job, i. 17.

THE DROMEDARY.

(Camelus Dromedarius.)

In Heb., *Bacar.*—In Eng., *First-born; Distinguished.*

"*How canst thou say, I am not polluted; I have not gone after Baalim? see thy way in the valley, know what thou hast done: thou art a swift* DROMEDARY *traversing her ways.*"—Jeremiah, chap. ii., 24.

The Dromedary may be denominated the Arabian racehorse, being chiefly remarkable for its prodigious swiftness. It is distinguished from the camel by having but one protuberance on its back.

Couriers, it is said, can go on them above a hundred miles a-day, and that for nine or ten days successively. Dromedaries require neither whip nor spur to quicken their pace, but go freely; if kindly treated. The females' time of gestation is about twelve months; and they generally bring forth one at a birth.

THE DROMEDARY.

THE ELK.

THE LLAMA.

(Camelus glama.)

This gentle and tractable animal may be regarded as the camel of South America, of which country it is a native. The llamas are employed for agricultural purposes, and to carry burdens; though extremely slow, not travelling more than ten or twelve miles in a day, yet that is made up by perseverance and industry. Like the camel, they lie down to be loaded.

When angry they have no method of revenge but spitting; an operation which many a visitor to the Zoological garden can witness not to be very agreeable.

In a wild state llamas live in herds. Running with great swiftness in places difficult of access, where dogs cannot follow, the only way of killing them is by the rifle.

The height of the llama is about four feet, and its length six feet. The female, which has only two teats, is said to go six months with young.

THE ELK, or MOOSE DEER.

(Cervus alces.)

The deer family, though numerous, yet from their general similarity, a very lengthened account of each will be by no means necessary. This noble natural group is distinguished by a remarkable development from the skull, of antlers or horns, belonging, generally speaking, to the male only, and given as wea-

pons of attack or defence. The horns do not at first appear, but after the first development they are annually shed. The reproduction of them begins in the spring, and are regenerated in time for the season of love. While the horns are growing the blood-vessels become greatly enlarged, producing a determination of blood to the head. In the red deer the full corneous development does not take place before the seventh year. The precise amount of development, in different species, depends upon laws which are but little understood.

The dental formula is alike in all ruminants; consisting of incisor and molar teeth only; the whole number being thirty-two. To this may be added, that the bodies of this class of animals are plump; their legs slender; have lachrymal sinuses under the eyes, the use of which is unknown; ears of moderate length; a muzzle in the greater part of the species; tail very short; and inguinal *mammæ* four in number.

The elk, though far from a handome creature, is when seen in its native wilderness, of majestic and imposing appearance. It is the largest of the stag genus, being higher at the shoulders than the horse. The hair of this animal is course and thick; its movements heavy; and its gallop more resembling shuffling than running: its joints cracking at every step.

Captain Franklin relates, that three hunters pursued a moose-deer on foot for four successive days, tracking its steps in the snow, but without getting a sight of the animal. At this period of the pursuit, the principal hunter had the misfortune to sprain

his ancle, and the two others were tired out; but one of them having rested for twelve hours, set out again, and succeeded in killing the animal after a further pursuit of two days' continuance. It was, however, noticed that the elk in his progress had latterly left traces of blood in his footsteps, arising from being tender-footed. Hearn besides noticing the tender feet of the elk, adds, that it is short-winded, and becomes an easy prey to horsemen and dogs, when found in a country free from underwood, and dry under foot.

This animal is a native of North America; but cannot endure a higher latitude than about 64°. It is also found in northern Europe, although less frequently than formerly.

The flesh of the elk is very excellent. The skin, though thick, is convertible to many purposes. Tradition says, that a pair of *inexpressibles* made of it, for the peasantry of olden times, went as a legacy for several generations.

THE REIN-DEER.

(Cervus tarandus.)

The sovereignty of Divine Providence is very apparent in the distribution of its favours, conferring more upon some than upon others; yet in mercy overlooking none. How many useful animals, for example, are given to the inhabitants of temperate climates; while to those living in the arctic regions, one animal only is given—the rein-deer; but that

one combining in itself the excellencies of the horse, the cow, and the sheep. The poor Laplander without the aid of the rein-deer could not subsist in that most inhospitable climate assigned to him; though with the aid of this most extraordinary and useful creature, he is enabled to brave every storm, and live in comparative comfort.

The rein-deer, time out of mind, has been in captivity. Though still to be met with in Kamschatka, Spitzbergen and other places, in its native wilds, we propose treating of this creature as the patient, active, and willing servant of man. The rein-deer, in fact, constitutes the sole riches of the Laplander; it being no uncommon thing, for one person, in a single herd, to possess above five hundred of them; hence an attention to them forms the chief employment of his life.

The height of this animal at the shoulder, is little more than three feet; the hair on the body brown, mixed with white; a large tuft of hair hangs from the throat of a dirty-white colour; the head long and fine; the horns about two feet wide, and nine or ten pounds weight, are covered with a kind of velvety down; the hoofs large, broad, and deeply cloven; the whole frame rather strongly than handsomely built.

The female begins to breed at the age of two years, the term of her gestation being eight months, and bringing forth two at a time. The milk is thinner, but more nutritious than that of the cow: in quantity it seldom exceeds more than a pint a day. The rein-deer lives about fifteen or sixteen years. Both sexes have horns.

The Laplanders during the winter months feed these animals upon the lower ground; but when summer appears they are driven up to the mountains. For this migration there seems an innate propensity in the animals themselves; and which the natives find it necessary to follow; since, by the heat of the sun, the woods and fens swarm with myriads of gnats, and other insects, which settling on the bodies of these poor creatures, and especially about the head, drive them almost to distraction. The gadfly is a common pest to the rein-deer, burrowing in his skin, and depositing its eggs. A single fly, when seen, is sufficient to put the whole herd in motion. The only defence from these unceasing persecutors, is to keep on the higher ground.

The services of these animals in drawing the Laplander's snow sledges are invaluable. One of them yoked to a light carriage, or sledge, will go a distance of about thirty miles a day without stopping; and that at a good round trot of nine or ten miles an hour.

The rein-deer is no less serviceable to his owner after death than during his life. Innumerable are the uses to which every portion of this animal's body may be applied; serving alike for food, clothing, and commercial enterprise.

THE STAG, OR RED DEER.

(Cervus elephas.)

THE stag has ever been admired for his surpassing beauty. The general elegance of his form, the lightness of his motions, the flexibility of his limbs, his branching antlers, his size, strength, and swiftness, place him at the head of the class to which he belongs.

After shedding their horns, and polishing their new antlers, which take till about July, the season of love begins, when the stag, from being gentle and quiet, becomes furious, and even dangerous. At this season, when two stags meet, their contest is most desperate, ending in the flight of one of them: the other remaining in possession of his mistress and the field till another rival approaches, when the conflict is reiterated. This state of things continues for three weeks, or a month.

The hind goes with young eight months, seldom producing more than one, which she conceals and guards with great care and courage. The stag, himself, ranges among the enemies of the fawn, which he would inevitably destroy, but for the maternal watchfulness of the hind. The fawn keeps with its mother during the whole summer; and in the winter, all animosity having ceased, the stags and hinds herd together until the spring, when they again separate: the fawns alone remaining together.

The stag is proverbially a timid animal, examining every bush and thicket that he passes, as if

apprehensive that some covert danger awaited him. When exempt from fear, he walks with a majestic step, raising his tall head, and glancing at surrounding objects with his beautifully large, soft, and sparkling eyes. At the least appearance of danger, he flies off with the swiftness of lightning. He is, moreover, rather nice in the choice of his pasture; and when thoroughly domesticated, anxiously looks out for biscuits or cakes, which his admiring visitors may have to present him. When his stomach is well filled, he lies down quietly, and at leisure, to chew the cud.

The personal courage of the stag, notwithstanding his usual timidity, is, under excitement, thought to be considerable. Some years ago, William, Duke of Cumberland, caused a tiger and a stag to be inclosed in the same area; when the stag made so bold a defence, that the tiger was at length obliged to give up.

The stag has in all ages been employed in the diversions of the chase; but the extensive forests formerly set apart to these animals having, in modern times, been more usefully appropriated to agricultural purposes, these beasts of the chase have become comparatively rare, those which remain being kept in parks. Some few, however, are still to be found in a wild state in the forests of Cornwall and Devon, as well as in the mountainous districts of Ireland and in the Highlands of Scotland.

THE AXIS DEER.

(Cervus axis.)

To the visitors of the Zoological Gardens the axis deer is no stranger. Although remarkably timid, it fearlessly takes bread or biscuit from the hand, provided it be clean. If previously offered to another animal, and blown upon, it is pertinaciously refused. Nicety of smell, however, is not peculiar to the axis deer, but common to the deer family generally. This animal is of surpassing beauty, its general appearance being elegant; the horns are round, and its colour bright fulvous, varied with white spots.

The habitat of the axis deer is India, chiefly the Dacca districts and Rohilla country. Its habits so nearly resemble those of other deer that they do not require distinct notice.

THE FALLOW DEER.

(Cervus dama.)

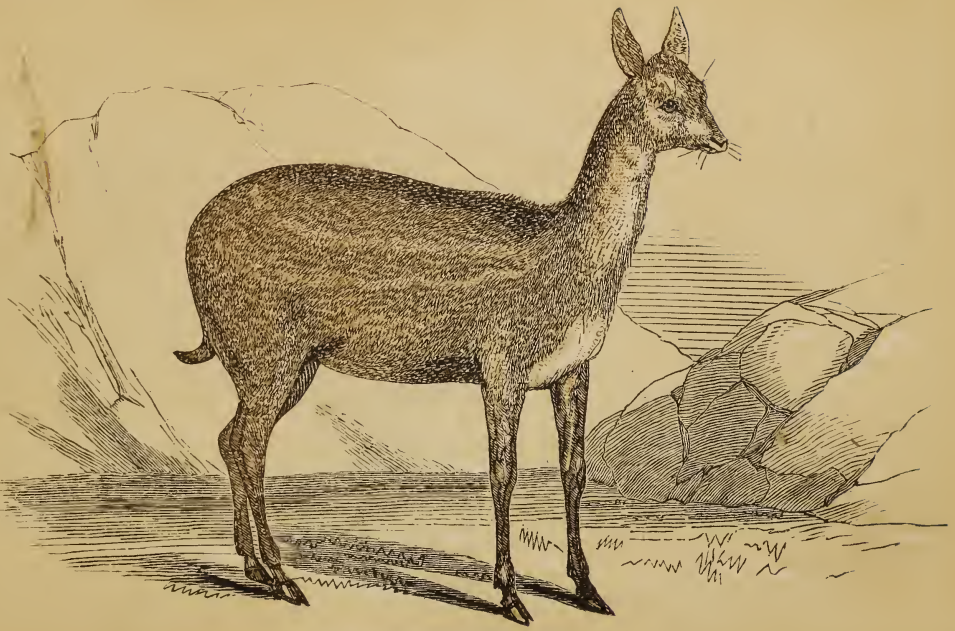
In Hebrew, *Yachmur*.—In English, *The Red-coloured.*

"*These are the beasts which ye shall eat: the ox, the sheep, and the goat, the hart, and the roebuck, and the* FALLOW DEER."
—Deut., chap. xiv., 4, 5.

This beautiful animal very nearly resembles the stag, though somewhat smaller, and its horns not round, but flat, palmated at the ends, and more ornamented

THE FALLOW DEER.

THE AXIS DEER.



with antlers. Its colour is likewise brighter and spotted.

The fallow deer, though originally foreign, has become almost indigenous amongst us, having greatly increased in almost every part of the country. The flesh of the stag is hard and insipid, while that of the English fallow deer, for fatness and flavour, is said to exceed that of any other country.

This animal, with some variation, is found in almost every country in the world. The words fallow deer occur twice in the Bible, and doubtless refer to some animal of the deer kind, but whether that known amongst us by this name, is perhaps doubtful.

THE CHEVROTAIN AND MEMINNA.

These beautiful animals claim attention from their diminutive size and symmetry, being at once the smallest of all cloven-footed quadrupeds, and the most beautiful. The chevrotain is not more than about seven inches in height, and twelve inches in length. The male has horns, which are scarcely two inches long, and jet black. Their general colour is a glossy reddish-brown inclining to yellow.

The chevrotain is a native of Senegal and the hottest parts of Africa: it is also found in India and the Indian isles.

The Meminna perfectly resembles a fallow-deer, though not larger than a hare. It is of a grey colour, spotted and barred with white; its ears are long and open.

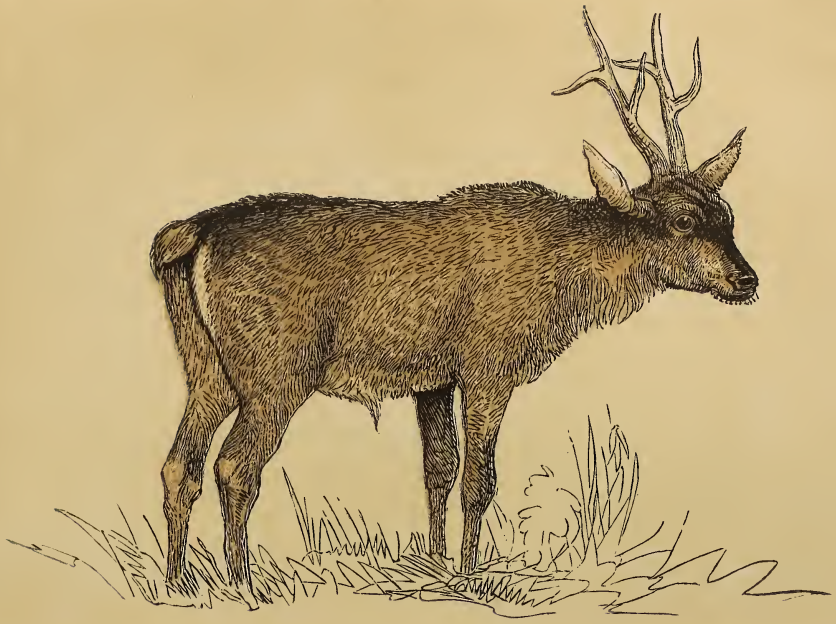
Both these animals are so extremely delicate, that they soon die when brought into a northern climate. In their native wilds, though gentle and familiar, they are extremely agile, bounding over a fence twelve feet in height.

THE ROEBUCK.

IN HEB. *Tzevee.*—(Cervus capriolus.)—IN ENG. *Beautiful.*

"*Notwithstanding thou mayest kill and eat flesh in all thy gates, whatsoever thy soul lusteth after, according to the blessing of the Lord thy God which he hath given thee: the unclean and the clean may eat thereof, as of the* ROEBUCK, *and as of the hart.*"—DEUT., chap. xii., 15.

EASTERN nations are so fond of figurative language that we need not wonder at the numerous passages of Scripture where this has been employed. The deer family being alike distinguished for timidity, beauty, and swiftness, furnish the sacred writers with appropriate illustrations of the subjects on which they treat. Animals of this family have, in eastern countries, always been held in the highest estimation for the voluptuous beauty of their eyes, the delicate elegance of their form, and their graceful agility of action. Hence Saul is denominated (2 Sam. i. 19) "the Roe (beauty) of Israel." So in verse 18 of the ensuing chapter we are told that "Asahel was as light of foot as a wild roe." Thus again, Lament. i. 6, "Her princes are like harts which find no pasture." And in Habakkuk, iii. 19, we read, "The Lord Jehovah is my strength, he will make my feet



THE ROEBUCK.

like hind's feet;" and, not farther to enlarge, the author of the book of Canticles says, chap. ii. 9, "My beloved is like a roe, or a young hart." From these quotations the reader will perceive that the deer family are referred to for their peculiar endowments.

The roebuck in form is elegant, its motions being light and easy. It bounds without effort, and runs with amazing swiftness. Unlike other deer, they do not keep together in herds, but live in separate families. The sire, the dam, and the young associating together, excepting during the season of love, when the fawns are made to retire.

Some years ago, Bewick remarks, one of these animals, after being hunted out of Scotland, through Cumberland, at last took refuge in the woody recesses bordering upon the banks of the Tyne. It was repeatedly seen and hunted, but no dogs were equal to its speed. It frequently crossed the river, and either by swiftness or artifice eluded all its pursuers. It happened, during the rigour of a severe winter, that being pursued it crossed the river upon the ice with some difficulty, and being much strained by its violent exertions was taken alive. It was kept for some weeks in the house, and was then again turned out, but all its cunning and activity were gone; it seemed to have forgotten the places of its former retreat, and, after running some time, it laid down in the midst of a brook, where it was killed by the dogs.

The roebuck is naturally so very wild and timid that in captivity it evinces no attachment to its keeper. The flesh, when young, is fine and well tasted.

The habitat of the roebuck is extensive, being spread all over Europe. It was formerly common in many parts of England and Wales, but now it is only to be found in the Highlands of Scotland. In America it is much more common than in Europe, growing, it is said, in Louisiana, to a very large size.

THE ANTELOPE.

(Capra cervicapra.)

It would, probably, be difficult to decide whether the passages of Scripture where the words hart, roe, and deer, occur, may not refer to the antelope, which also is considered to be the dorcas or gazelle of antiquity. Certain it is that the animal now to be described is quite equal to that of the preceding article for beauty and loveliness.

The antelopes form an extensive family, which, however, cannot be very accurately distinguished from the deer and the goats, two families of which the antelope seems to form the connecting link. Baron Cuvier simply refers to the curvatures of the horns as their peculiar characteristic, a distinction, however, very indefinite.

The common antelope is an animal of surpassing beauty of form, and swiftness of motion. Its colour is a bright reddish-brown, the belly and inner parts of the thigh white, the tail short. In size it is somewhat less than the fallow-deer, but far surpasses it in swiftness, giving the dog no chance in its pursuit, the rifle of the huntsman being employed in its destruc-

THE NYLGHAU.

tion rather than his dogs. The horns of this animal are remarkable for a beautiful double flexion, giving them the appearance of the lyre of the ancients; their length is about sixteen inches.

Northern Africa is the peculiar habitat of the common antelope, but animals of the same family are to be found in almost every country of the old world.

THE NYL-GHAU.

This is the last of the deer kind which we can notice, and which seems to connect the deer and the ox together, being larger than the former and less than the latter. It is a beautiful animal, of an ash or grey colour, the hair being more erect than in the deer; it has, likewise, an upright mane. The horns are only about seven inches long, the ears of the same length, with considerable breadth, and beautifully-marked, zebra-like, with white edges and black bands. The female is much smaller than the male, and bearing a much greater resemblance to the deer. Like the cow, she is furnished with four teats, goes nine months with young, and seldom has more than one at a time.

Several specimens have been brought to this country; their habits appear harmless and gentle. The males, in common with many of this family, fight desperately, especially during the season of love. Two males in the same enclosure were observed, while at a distance from each other, to be preparing for a contest, by falling down upon their knees; they

then shuffled towards each other, [illegible] upon their knees, and at the distance of a [illegible] they made a spring, and darted against [illegible] with great force. These attacks were renewed [illegible] weaker of the combatants, to save his [illegible] to retire. The nyl-ghau is a native of India.

THE GIRAFFE OR CAMELEOPARD.

(Cervus Camelopardis.)

To a reader of the Bible the question naturally suggests itself, Is this extraordinary animal mentioned in Scripture? To this we answer, that the word certainly does not occur in our translation of the Bible, although high authority may be adduced to show that the giraffe or cameleopard is the animal intended to be noticed by the writer of the book of Deuteronomy. In the fourteenth chapter of that book, and at the fifth verse, we read, "These are the beasts which ye shall eat: the fox, the sheep, and the goat, the hart, and the roebuck, and the fallow-deer, and the wild goat, and the pygarg (the dishon or bison), and the CHAMOIS." Now the word employed for this last animal, in the Hebrew, is zemar, literally signifying the cropper, and which the Alexandrine and Vatican versions of the Septuagint, or Greek Bible, agree in translating *camelopardalis*, or cameleopard. Jerom, a distinguished Latin commentator, and Rabbis Jonas, and Kimchi, well-known writers among the Jews, concur in this rendering; although others of great repute, as Bochart and Leclerc, take a different

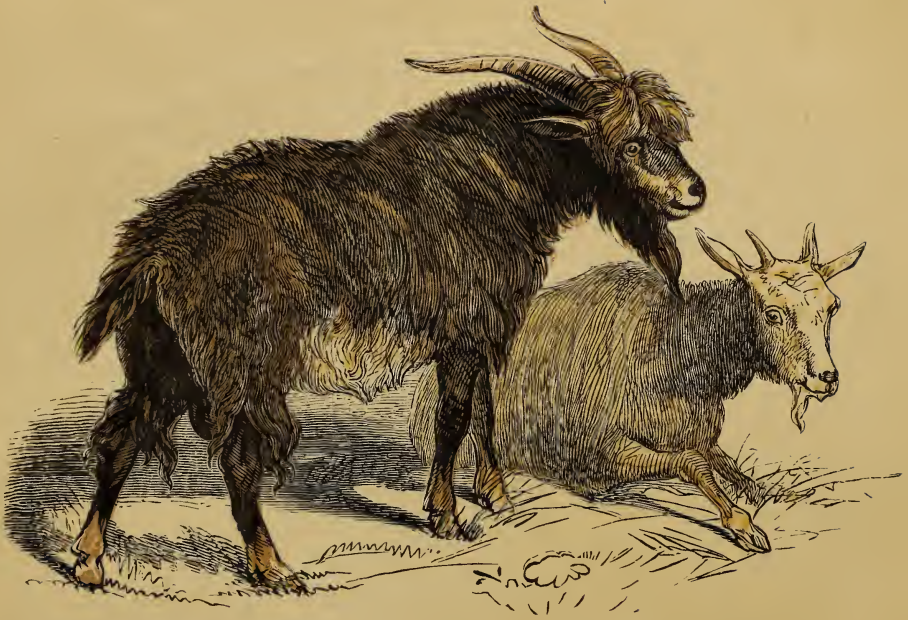
view of the subject, and maintain the correctness of our translation. "The Arabic version," say the authors of the *Pictorial Bible*, "understand that the giraffe was meant here, which is very likely to have been the case, for the chamois is not met with so far to the southward as Egypt and Palestine. The Jews had probably many opportunities of becoming acquainted with the animal while in Egypt, as had also the Seventy, who resided there, and who indicate it in their translations of the Hebrew name." The decision of this question we leave to our readers.

Whatever knowledge the ancients may have had of the giraffe, it was but imperfectly known in Europe until a very late period. Le Vaillant, a distinguished traveller, was one of the first who gave an accurate account of this animal. He did not meet with it until his second journey into the interior of Africa from the Cape, during the year 1783–5, inclusive. A male giraffe, described by Vaillant, measured 16 feet 4 inches from the hoof to the extremity of the horns. The female is generally smaller than the male; no apparent difference is perceptible in the colour of the male and female. Unlike other corneous animals, the giraffe cannot shed its horns, since they form a part of the cranium itself. They are covered, throughout their whole length, with short coarse hair. There is nothing peculiar in the dental formula of the giraffe, having, in common with all ruminants, thirty-two teeth. The tongue of the animal is most peculiar in structure, being long, and employed, not merely as an organ of examination, but of prehension also. Its power in this respect being so great, that even when

extended to the utmost it can grasp an ordinary lump of sugar, of which the animal seems very fond, and convey it into the mouth. The utility of such a power of prehension is manifest, since the animal's principal food consists of the leaves and slender twigs of trees. The tongue likewise is so tapered that it can be made to enter the ring of a very small key; and being also extremely flexible the animal, by its retroversion, can cleanse its nostrils in the most perfect manner.

From the appearance of the giraffe, it is generally supposed that the forelegs are longer than the hind-legs. The contrary, however, from an examination of the skeleton, is the fact. A measurement taken from the head of the shoulder-bone to the extremity of the forefoot gives an inch less in length than a measurement taken from the head of the thigh-bone to the extremity of the hind-foot. Although to an ordinary observer the giraffe does not appear to be formed for very quick motion, yet we are assured, that in a state of nature its swiftness fully equals that of a horse. Its speed, in fact, is almost its only means of defence. It can, indeed, butt with its horns, or strike out with its forefeet, but it has never been known to kick. Its harmlessness and gentleness are proverbial.

Four of these animals were brought, in 1836, from the south-west of Kordofan, where they were captured, to the Zoological-gardens, Regent's-park: here they have several times bred. Those now living (1851), four in number, appear in excellent health and condition. Being denizens of southern Africa they require considerable care during the



colder weather. Their principal food consists of good hay, to which, by way of a treat, is occasionally added carrots, onions, or sugar.

THE COMMON GOAT.

In Hebrew, *Ez.*—(Capra hircus)—In English, *The Hardy.*

"*Go now to the flock, and fetch me from thence two good kids of the* goats."—Gen. chap. xxvii., 9.

Familiar though we may be with the lively, pretty, and useful animal, the goat, yet zoologists are not agreed as to the species from which it is derived. Cuvier remarks that the domestic goat varies infinitely in stature, colour, length, and fineness of the hair, and in the size and number even of the horns. That the goat was well known at a very early period, no better proof can be given than the frequent reference made to it in the sacred volume. It was reckoned among the clean animals, according to the Mosaic economy, and was not only freely eaten by the Jews, but employed also in their sacrifices and feasts, especially that of the passover.

The goat inhabits most parts of the world, either native or naturalized, bearing all extremes of weather, whether hot or cold. However numerous in some localities, it is comparatively rare in Britain. In South Wales the goat is now seldom to be seen, and a few only can be found in a wild state in Glamorganshire. Formerly, according to tradition, brother Taffy never wanted a pony while a single goat remained in his possession.

The odour of the goat though strong, especially from September to November (the rutting season), is believed not to be unwholesome. Horses are said to be refreshed by it. The activity of the goat is well known, the creature feeling in perfect security on the edge of the highest precipices, bounding from rock to rock with wonderful precision. It is nice in its feeding, selecting the tops, tendrils, and flowers of mountain shrubs, and aromatic herbs. It is a fearful enemy to the vine, and as such was sacrificed by the heathen to Bacchus. The female brings forth from February to April, after a gestation of eighteen weeks, generally two, but not unfrequently three, or even four. The milk of the goat is of a peculiar quality, and was formerly in request as a specific for certain disorders.

THE IBEX.

(Capra Ibex.)

The Ibex forms a beautiful specimen amongst the goat family. It is larger than the common goat, with horns much longer, bent backward, and full of rings. Some of these horns have been found two yards long. The head is small, and furnished with a dusky beard. The upper part of the animal's thick hairy coat is of a deep brown colour, a black streak running along the top of its back; the belly and thighs are of a delicate fawn colour. The female is about a third-part less less than the male, and is fur-

nished with horns, although but small. She brings forth one young at a time, seldom two.

This animal is found in elevated situations, chiefly amongst the highest Alps of the Grison country. They are excessively wild, keeping on the loftiest points of the rocks, the hunting of them, in consequence, not unfrequently proves dangerous, or even fatal, to the huntsman.

THE CHAMOIS GOAT.

(Capra Rupicapra.)

This animal, in common with the whole goat family, is pretty, lively, and active beyond expression. It is of an ashy colour, which, towards winter, becomes a blackish brown. It has often been greatly admired for the beauty of its eyes, which are large, round, and sparkling. Its head is furnished with two horns of a brilliant black colour, which stand forward, and then bend a little backward towards their extremities. The ears are elegantly placed near the horns, and are of a whitish-yellow colour, which colour also pervades the whole head, with two stripes of black on each side of the face. The horns of the female are shorter than those of the male.

The dams and fawns herd together in considerable numbers until the season of love, which commences in the beginning of October, when the males, before feeding detached from the rest, approach the females, and drive the fawns away. The females bring forth in March and April.

The chamois feeds upon the most delicate parts of plants, flowers, and tender buds, within its reach. The aromatic plants of the mountains are no less grateful to this animal.

In the mountainous districts of Dauphiny, Piedmont, Savoy, Switzerland, and Germany, these animals greatly abound. They are surprisingly sure-footed, ascending or descending precipices as if furnished with wings rather than legs, so that no dog stands the least chance when in pursuit of them. The huntsman, armed with his rifle, cannot approach them without considerable hazard, and always with great labour.

The skin of this animal, for the manufacture of the leather called shamoy, is far less valuable than formerly.

THE GOAT OF ANGORA.

This variety is well known for its long, thick, and glossy hair, fine like silk. Its ears are long and pendulous. The horns of the male are curiously twisted, proceeding horizontally from each side of the head, in shape resembling a screw; those of the female are shorter, encircling the ear. Like other goats they are fond of an elevated situation, and can endure a very cold climate. The mountainous rocks of Pontus are believed to be their special habitat.

THE WAPITI.

THE SYRIAN GOAT.

(Capra Mambrica.)

The goats of Syria are larger in size than the common goats, and are distinguished by having long pendulous ears, which are often more than a foot in length. Dr. Russell, in his *History of Aleppo*, tells us that this kind are kept chiefly for their milk, which is sweet and well tasted. The milk of goats was formerly considered a good beverage. See Proverbs, xxvii. 27.

The length of the pendulous ears of this animal is believed to be referred to by the prophet Amos, chap. iii. 12, where he says, "As the shepherd taketh out of the mouth of the lion, two legs, or a piece of ear, so shall the children of Israel be taken out that dwell in Samaria and Damascus." Now though it was, doubtless, the intention of the prophet to express the smallness of that part of Israel that escaped from destruction, and were seated in foreign countries, yet it would have been hardly natural to have supposed a shepherd would exert himself to make a lion quit a piece only of an ear of a common goat; it must be supposed to refer to a goat of the long-eared kind.

The bottles referred to in Holy writ, were usually made of goats' skin. When the animal was killed, its feet and head were drawn out of the skin, without opening the belly. The places where the legs had been cut off were then sewed up, and the bottles when filled with water, &c. were tied about the neck. These bottles when old were very liable to become rent.

THE SHEEP.

In Hebrew, *Keves.*—(Ovis aries.)—In English, *Valuable.*

"*Your lamb shall be without blemish, a male of the first year: ye shall take it out from the* SHEEP, *or from the goats.*"—Exodus, chap. xii., 5.

The sheep is so widely scattered over all temperate climates, that to trace its original habitat is impossible. Its history appears coeval with time, the sheep being mentioned as connected with the second individual born into this world. See Genesis, iv. 2. It has, doubtless, undergone many changes from climate, food, and cultivation, which have made it pre-eminently the creature of man; yet it has, to a great degree, preserved its identity and habits. Writers, sacred and secular, have often referred to it as a model of singular inoffensiveness and harmlessness. No wonder, then, that the name of this creature is frequently given to the founder of our holy religion.

Still, it would be wrong to infer that the sheep is as stupid as he is quiet and unoffending. There are occasions when, in the absence of the protection of man, sheep have been obliged to exert a courage which, at first sight, we are apt to pronounce that they do not possess. The ram, indeed, in such cases very properly takes the lead, and in which he will boldly repel the attacks of a dog, and compel his canine combatant to quit the arena of contest in discomfiture. When the danger is more alarming, the whole flock will form themselves into a complete phalanx, placing the lambs and ewes in the centre; the lords of the flock taking the foremost ranks, and

THE HEATH RAM

LEICESTER AND WALLACHIAN SHEEP.

keeping close by each other. On the aggressors advancing within a few yards of the line, the rams suddenly dart upon them with such impetuosity, that their enemies are placed in great jeopardy, if not secured by a precipitous flight. Such scenes we know occur in the country; but if similar contests are not seen in Smithfield, or its vicinity, very good reasons may be given why. The brutality of the London drovers, the fierceness and training of their dogs, together with the barbarity to which sheep are everywhere subjected in their last fatal visit to London, will explain all this. Humanity shudders at the horrible treatment which these poor animals experience in the crowded, ill-placed, and mismanaged cattle-market of Smithfield; and every benevolent mind sincerely hopes that the path to death for cattle brought to London will not be quite so thorny and terrible as at present. A British Parliament, we hope, will not allow itself to be gulled by a corrupt corporation, or a few selfish salesmen and butchers, but that Smithfield market will be forthwith removed.

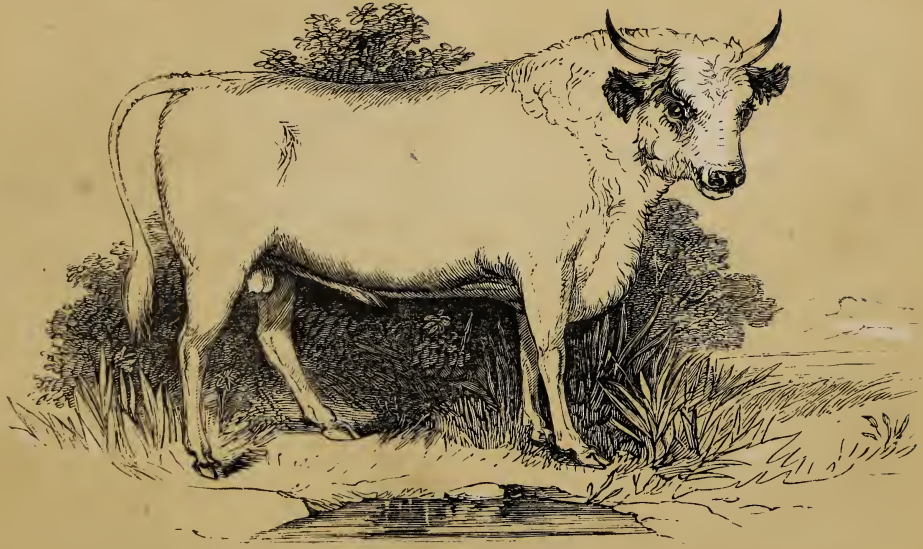
Sheep are particular in the selection of their food, and though they easily procure sustenance from a common, which to the eye appears barren, by the closeness of their bite, yet all rank grass or weeds are carefully avoided; the animal preferring the sweet though short turf. These animals also, though rather tender, can endure great severity of weather; and by some mysterious instinct foresee an approaching storm, and endeavour, in the best manner in their power, to secure themselves from the "billowy tempest."

No country in the world produces finer sheep than

Great Britain. The different breeds vary considerably in size, the smaller sheep producing the finest flavoured mutton. The wool of our sheep was formerly comparatively coarse, and of inferior value; but since greater attention has been given to the breeding of sheep, particularly by crossing the native sheep with those of the merino kind, the wool has improved alike in quality and value. At this moment it may be stated that our woollen manufactory stands unrivalled.

The ewe produces one lamb at a time, sometimes two. There exists a considerable difference in the breed of sheep in our own country. The Lincolnshire and Leicestershire sheep are remarkable for their large size; the Dorsetshire and Wiltshire sheep, though smaller, are more prolific, the ewes not unfrequently having young twice in a year; the Norfolk and Suffolk greatly resemble the last-mentioned kind, but are all grey or black-faced; the South Down sheep are of the same hardy kind as those of Norfolk and Suffolk, but their flesh is singularly well flavoured. A still smaller kind is found in the north of Scotland, which are of a dun or dark colour. There is an interdict, by an old act of parliament, against a *black ram* being allowed to range with a flock.

For utility to man no animal can exceed the sheep. Its fleece is converted into broad cloth; its skin is manufactured into parchment and leather; its entrails are converted into strings for fiddles and other musical instruments; its milk affords both butter and cheese, though not of the choicest kind; while in its flesh we find a delicious and wholesome food.



THE BULL.

THE BULL.

(Bos Taurus.)

In Hebrew, *Shor*.—In English, *The Director*.

"*If a man shall steal an* ox, *or a sheep, and kill it, or sell it, he shall restore five oxen for an* ox, *and four sheep for a sheep*."—Exodus, chap. xxii., 1.

Rightly to understand Scriptural Zoology, the reader of the sacred text will do well to bear in mind, that the word *cattle*, which so often occurs in Scripture, is not, as in modern times, restricted to animals of the bovine kind, but includes all domestic animals, as goats, sheep, bulls, cows, &c.; and also, that wherever the word *ox* is found in our translation of the Bible, that it always means an unmutilated male animal, known amongst us by the name *bull*. Emasculation, in one word, was strictly forbidden by the express law of Moses, in reference to all animals of the male kind, without exception. Animals devoted to God in sacrifice, or those which were consigned to labour of any kind, were to remain strictly in a state of nature.

The Saxon word *oxa* literally signifies black cattle of both sexes; and in this sense we employ the word when we say that the Ox is the most valuable animal-gift conferred upon man by his Creator.

This animal is widely scattered over the habitable world, being found amidst the rigours of a polar climate, and within the tropics. Not that it inflexibly retains the same nature or form; on the contrary, it accommodates itself to the wants and conveniences of mankind, yet without losing its identity.

In no animal, probably, is a greater variety of form or colour to be found than in the ox; and in none, a disposition more humble or pliant.

Ere money was employed as a circulating medium, and the primitive plan of barter, or skin for skin, was the mode of trading, oxen constituted no inconsiderable portion of the wealth of the opulent. Of Abraham it is said, Gen. xxiv. 35, that "he was very rich in cattle;" the same is remarked of Jacob, Gen. xxx. 43: of Job it is declared, that "his substance was seven thousand sheep, and three thousand camels, and five hundred yoke of oxen."

At the earliest period, and for ages afterwards, the hopes of oriental husbandmen depended chiefly on the labours of the ox. In the days of Job, a patriarch probably coeval with Abraham, we read that "the oxen were ploughing, and the asses feeding beside them, when the Sabeans came upon them, and took them away." Job i. 14, 15. At a later period, when Elijah was commissioned to anoint Elisha, the son of Shaphat, prophet in his stead, he found him ploughing with twelve yoke of oxen. 1 Kings, xix. 19. This, not to multiply instances, was so much the case in Solomon's time, that he observes, "Where no oxen are, the crib is clean (empty); but much increase is by the strength of an ox." Prov. xiv. 4. The Jews being an agricultural, rather than a commercial people, always valued the ox as by far the most important of domestic animals, from its use in all the operations of farming. To these practices the sacred writers refer; and the Divine Being condescended, as kindly as wisely, to legislate for this valuable and faithful servant of man—"Thou

shalt not muzzle the ox when he treadeth out the corn." Deut. xxv. 4. Our readers, we feel persuaded, will not consider these introductory remarks to be either tedious or irrelevant.

No habitat appears to suit the ox better than Great Britain, its climate and pasturage being well adapted to the nature of this animal. The variety and abundance of our vegetables have doubtless been the great means of increasing the number and excellence of our cattle. Oxen, it has often been remarked, prefer high and rich grass in pastures, rather than the shorter and more delicate, and that they thrive admirably in grass which is rather high and flourishing, than in that which is more succulent and nutritious.

Great attention having been paid in this country to the breed of cattle, we need not wonder that considerable improvements have taken place in this department of agricultural pursuits. The size of our oxen materially differ according to the breed. The Holstein or Dutch breed, in good pastures, grows to a large size, the cows yielding a greater abundance of milk than those of any other kind. A seven-year-old ox will measure from the head to the rump from nine to ten feet; the height from the shoulder about six feet; the weight, without the offal, from a hundred and eighty to two hundred stone, of fourteen pounds. Cows of this large size are usually kept by the London cow-keepers, from the large quantity of milk which they produce. The milk is forced by the cows being fed with grains, and drenched with distiller's wash; this, with a moderate admixture from the *black cow*, or *pump*, will make the daily average of milk

from each cow amount to from forty to fifty quarts a day. Such cows are kept only for a limited time, and then fattened for the butcher. The Lancashire breed, though not quite so large, is very handsome in form, having long, small, and smooth horns: they are hardy, and grow fat on indifferent pasture. The Highland and Shetland breed is still smaller; the prevailing colour being black, with thick and furry hair. Of late years great numbers of Highland cattle are sent to the London market already fattened. The Alderney cows are in general request for the richness rather than the quantity of their milk. They are extremely handsome, but require considerable care, especially during severe weather, being very tender. Families having cows for domestic purposes, should never have them of too large a size, since they are apt to poach the pastures in which they feed; a great loss also ensues when they become dry, and must be parted with.

The property which cows possess of freely yielding their milk for a long period, without the aid of the calf is most important. Herein they differ from all other mothers, who unless their young continue to suck every day, soon become dry. The capaciousness of the cow's udder, and her having four teats, are also striking peculiarities: the number of teats in all other animals bearing some proportion to the number of young ones which they bring forth at a time. The cow goes nine months with young, and seldom produces more than one at a time.

The propriety of the name *director* given to the bull in Scripture, can only be rightly seen while the animal remains in a state of nature. Then the bull

THE SYRIAN OX.

is found to direct the whole herd, placing himself at their head, and braving every danger in their defence.

Wild cattle are almost extinct in this country. Numerous herds of them were formerly to be found in several parts of England and Scotland; but they have now nearly disappeared. A few, we believe, are still to be found in the parks of Chillingham-castle, Northumberland, the seat of the Earl of Tankerville and in two or three other parks in the north of England. Our print represents a bull from Chillingham park. Wild cattle are invariably white.

THE SYRIAN OX.

The Syrian ox, next to be described, was not remarkable for its large size; but for its compactness and strength. It may be compared to the Kyloe ox of the western islands of Scotland, both for size and colour. It did not exceed, in the ordinary way, more than forty stones in weight, and was almost of a black colour. It possessed one mark which distinguishes all Asiatic cattle, that of having a large protuberance above and between the shoulders. The horns of this variety were also very wide, tapering, and sharp at the tips. When domesticated, it appears to have been quiet, docile, and laborious. This animal amongst other duties was employed in treading out the corn, and to which the prophet beautifully refers in his remonstrance with disobedient Israel. Hosea x., 11.

THE AMERICAN BISON.

(Bison Americanus.)

The American bison greatly resembles that of Europe. In both are to be found the same huge head; the lengthened spinous processes of the back bone, for the attachment of the animal's brawny muscles; the conical hump between the shoulders, and the shaggy mane. Yet are there some peculiarities: the common ox, has but thirteen ribs on each side; the European bison fourteen; the American species fifteen. The general development of the American bison is, however, much inferior to that of the bison of Europe.

It would appear that formerly these animals were to be found in almost every part of the North American continent; but they have gradually retired before the white population, and are now rarely to be seen south of the Ohio, on the eastern side of the Mississippi. They still exist in vast numbers in Louisiana, roaming in countless herds over the prairies that are watered by the Arkansa, Platt, and Missouri rivers. Towards the summer they migrate northward, and are seen as far north as Great Marten Lake, in latitude 63° or 64°. In these transits during spring and autumn, they sometimes form herds of several thousands. Captains Lewis and Clarke saw such multitudes on the banks of the Missouri, that, although the river, including an island over which they passed, was a mile in length, the herd stretched as thick as they could swim,

THE BISON.

THE BUFFALO.

completely from one side to the other: their number was calculated at twenty thousand.

The bison, though furious when irritated, is not fond of aggressive war, being naturally disposed to be quiet. Still they defend themselves with great spirit against the attacks of bears and wolves, forming themselves, on such occasions, into a complete circle; the bulls placing themselves outside. The Indians shoot them, or encompass a herd by firing the grass, when they are destroyed without difficulty.

The hunting of this animal, though attended with some danger, well repays the huntsman for his pains, since every part of the animal is turned to account, for food, clothing, or other purposes.

THE BUFFALO.

(Bos Bubalus.)

The buffalo in a wild state is a fierce and formidable animal, although without much difficulty rendered submissive to the yoke. Its length from head to tail, is about eight feet; its height five and a-half feet; the limbs, in proportion to its size, being much stouter than those of an ox; the horns are singular both in form and position, extending over a great part of the head, though not joined at their bases, the distance between their points being often more than five feet; the ears are large, and somewhat pendulous; their colour is a dark brown; the tail is short and tufted; the eyes large, but somewhat sunk; the general aspect of the animal being at

once fierce and cunning. The flesh is coarse and lean; the hide thick and tough, but of great value for making thongs and harness.

The principal habitat of the buffalo is southern Africa. From its great resemblance to the common ox, an identity may be supposed to exist; yet no two animals of the same genus can be more distinct. The cow refuses to breed with the buffalo, while she is known to propagate with the bison, which in point of form bears a much more distant similitude. Another striking difference between the buffalo and the common cow is, that while the former remains pregnant twelve months, the latter only nine months.

The following account of a rencontre with a buffalo may interest our readers. Mr. Thunberg, the traveller, accompanied by a gardener and a serjeant, went out herborizing in the neighbourhood of the Cape. The gardener, who happened to be a little way in advance, was suddenly attacked by a large male buffalo, rushing upon him with a terrible roar. The gardener turned his horse short round behind a great tree, so as in some measure to get out of the sight of the buffalo, which now charged straight toward the serjeant, who followed, and gored his horse so terribly, that it instantly fell on its back, with its feet turned up in the air, and its entrails hanging out, in which state it lived almost half-an-hour. In the mean time the gardener and serjeant had climbed up into trees for safety. Thunberg, intent upon his botanizing, heard nothing of all this, though so near. But the buffalo had not done yet. The serjeant had brought two horses with him for his journey. One of them, as we have seen, had been already

dispatched; the other now stood in the way of the buffalo, as he was going out of the wood. As soon as the infuriated beast saw this second horse, he attacked it so furiously, that he not only drove his horns into the horse's breast, and out again through the saddle, but threw it to the ground with such violence, that it instantly expired. Just as the buffalo was thus engaged with this last horse, Thunberg came up to the opening, and beheld the frightful scene. The wood was so thick that he had neither room to turn his horse round, nor to get on one side; he was therefore obliged to take refuge upon a tree into which he climbed, leaving his horse to his fate. But the buffalo had satiated his rage, or did not distinctly see the new object, for after his second exploit, he turned suddenly round and went off. Thunberg found his companions half dead with fear; indeed the gardener was so affected, that he could scarcely speak for some days after, and the two surviving horses were discovered shivering with fear, and unable to make their escape.

THE ZEBU.

(Bos Indicus.)

The zebu is but the Indian variety of the ox. They are natives of southern Asia, as far as China; they are also found in southern Africa. Being very gentle, they are much used as beasts of burden, and are alike useful for the saddle, the plough, and the carriage. They are not very quick in their movements,

twenty, or twenty-five miles forming the journey of a day. The zebu is chiefly distinguished from the common ox by a large lump on the shoulder, which sometimes will weigh as much as fifty pounds: this is esteemed a great luxury for the table. When zebus have bred with our common cattle, the hump has gradually disappeared.

There are several specimens of this animal in the gardens of the Regent's Park. The Brahmin bull and cow deserve peculiar notice. The body and head of these animals are of a bright slate colour; the legs and dewlap, or loose part beneath the neck, being cream coloured. The horns are short and stunted; the ears large and pendulous, and which the animal can move with great facility, in any direction.

In India beautiful specimens of these animals are selected by the priests to pay them special veneration, the whole breed being held sacred by the deluded Hindoos, who regard it a crime to kill them.

THE MUSK BULL.

(Bos Moschatus.)

The last of the ruminants which we can notice is the musk bull, an inhabitant of North America, on the shores of Hudson's Bay. In size it nearly resembles the Highland breed. The horns are round and tapering, curving directly downward, and then upward, being smooth and black at the point. The

hair is dark brown, long, matted, and curly. The cow is somewhat smaller than the bull.

The habitat of this animal is to be sought in the barren lands of America, lying to the northward of the 60th parallel, and extending to about Melville Island, in lat. 75°, but not to Greenland, Spitzbergen, or Lapland. Captain Parry, in his first voyage, mentions the appearance of musk-oxen on Melville Island during the month of May.

These animals are swift in their paces, and climb rocks and hills with great facility. A party of hunters on the banks of the Copper-mine river in pursuit of a musk bull, found that the animal scaled a lofty sand-cliff with so great a declivity, that they were obliged to crawl on their hands and knees to follow the chase. They herd together in number from twenty to thirty; are in their rut about the end of August; the cows bringing forth a single calf in June. If the hunters keep themselves concealed, it is said, and fire upon them, the poor animals become frightened, and huddle nearer together; but should they, either by sight or smell, perceive their pursuers, they instantly make a precipitous flight. The hunting of them is often attended with very considerable danger, the bulls being very irascible, and by turning about and attacking the hunter, especially when wounded, human life is not unfrequently sacrificed to their revenge. The flesh of these animals is considered palatable, although it has rather a musky flavour.

Several fine specimens of Musk Oxen may be seen in the gardens of the Regent's Park.

THE KANGAROO.

(Macropus major.)

The arrangement of the order of animals which next claims our attention, is by no means decided. The *pouch* with which they are furnished, might seem to discriminate this family; but even in this they very much differ, and in other respects run so parallel with the orders of ordinary quadrupeds, and also present so many anomalies in their general structure, that each individual seems to require a distinct notice. They are chiefly inhabitants of the Australian continent, but not exclusively so, since America also furnishes a few specimens.

The larger or gigantic kangaroo is a native of New Holland, having been first discovered by Captain Cook, during his third voyage, in the year 1770. So many have been brought to England since that period, that few persons are strangers to them. The most striking outward peculiarity of this animal is, the extreme disproportion of its limbs, the fore legs being only about twenty inches long, while the hinder ones are more than twice that length, and very muscular. The fore legs, therefore, are not employed, excepting in browsing, or in very slow pacing. The tail is extremely thick at its base, and very long and tapering. When the animal wishes to proceed quickly, the tail as well as the hind feet is employed, the animal making successive leaps of from twenty to thirty feet forward, and six or eight upwards.

THE KANGAROO

Dogs, therefore, especially where underwood abounds, have no chance; but in the open plain, and in a long run, the kangaroo may soon be overtaken by its pursuers. The hind feet are furnished with four toes, armed with thick and strong nails. The fore feet have five toes, having also very long nails. When the dogs get close to a kangaroo, the animal will turn about and show fight, adroitly turning round and round, so as always to face its enemy, pushing him off with his fore paws; or it will seize and hug him like a bear, ripping him up with the long sharp claws of its powerful hind legs. Should water happen to be near, the kangaroo will be sure to retreat thither, pushing the dogs under water, and drowning them.

Kangaroos were formerly found in great number in the Swan-river colony, and in King George's Sound; but they have gradually retired from the abode of man, and in many localities have already become nearly extinct. When a female, having a young one in her pouch, is very hard pressed, she will sometimes drag out her young one and throw it aside, that she may hop along the more lightly. But a mother's heart being always tender, the kangaroo-mother must be placed in extreme peril before she will sacrifice the life of her poor helpless offspring to save her own. The colour of these animals is a dull brown, or brownish grey, lighter on the throat and belly, but approaching to black on the muzzle, feet, and upper part of the tail.

The female produces but one at a time, which when born is not so large as a small mouse, and quite in a fœtal or rudimentary state, even the limbs

being unformed. The term of her gestation is only thirty-nine days. The mother, on the birth of the young conveys it by means of her mouth, into an open pouch or bag, which may well be denominated a second *uterus* or womb, consisting of folds of the skin beneath the abdomen. Within this pouch the dug of the mother is found, and the young one is assisted by the mother in taking hold of it, which forms a continuous attachment between the mother and her offspring; although the young one is in so unformed a state, that it does not possess the power of sucking, nature supplies that incapacity by an apparatus which forces the milk into the youngster's stomach. In this state the young one is conveyed for three quarters of a year, weighing by that time about fourteen pounds. When the young one is able, it will get from the pouch; but on the least approach of danger it flies to this marvellous refuge for the destitute. Often may the young kangaroo be seen peeping out from the pouch to ascertain whether it be safe to venture out again. For these singular and interesting particulars we are indebted to Professor Owen's paper "On the Generation of Marsupial Animals."

The kangaroo readily becomes domesticated; but like other strong animals is always rather to be feared than trusted. A modern traveller gives us the following account. The creature approaches a stranger, "creeping and snuffing cautiously, and with such an innocently expressive countenance, that roguery would never be surmised to exist under it; when having obtained, as he thinks, a sufficient introduction, he claps his fore paws on your shoulders,

THE MEXICAN OPOSSUM AND YOUNG.

as if to caress you, and raising himself suddenly upon his tail, administers such a well-put push with his hind legs, that it is two to one but he drives you heels over head! This is all done in what he considers facetious play, with a view of giving you a hint to examine your pockets and see what *bon bons* you have for him, as he munches cakes and comfits with epicurean *goût;* and if the door is ajar, he will gravely take his station behind your chair at meal-time, like a lackey, giving you an admonitory kick every now and then, if you fail to help him as well as yourself."

THE VIRGINIAN OPOSSUM.

(Didelphys Virginiana.)

This animal is about the size of a domestic cat, and of a dull white colour, tinged with brown. The ears are black at the base, and yellowish at the tip. The tail is of considerable length, though not so long as the body, and possesses prehensile power, which greatly assists the animal in climbing, at which also it is very expert.

The Virginian opossum is to a certain degree carnivorous, though vegetable food also will be taken. Like the kangaroo, it is remarkable for the manner in which it produces its young. It is said that if a cat has nine lives, the opossum must have nineteen, since if you break every bone in its skin, half an hour after it will have crept away. This statement, how-

ever, must be understood with some limitation. It is a very stupid creature, and in captivity sullen and snappish also.

THE MEXICAN OPOSSUM.

(Didelphys dorsigera.)

This variety in the opossum family is distinguished by having the inner toe of the hind feet converted into a thumb, destitute however of a claw, hereby giving additional security to the animal in climbing; a development which is found in nearly all the species which have a scaly prehensive tail. In some of the smaller opossums likewise the sub-abdominal tegumentary folds are but rudimental, serving merely to conceal the nipples, and are not developed into a pouch. In such species the young adhere to the mother by entwining their little prehensile tails around hers, and clinging to the fur of her back. Of the facts relating to the condition of the newly born young, and their precise mode of uterine development in the pouchless opossum, we know, at present, but little; but since the marsupial bones are found in those animals where there is no pouch to support as well as in others, there is presumptive proof that they must assist in the function of the mammary glands.

The opossum dorsigera is a native of New Spain.

THE FLYING OPOSSUM.

THE URSINE OPOSSUM.

(Dasyurus ursinus.)

This singularly unlovely animal is about the size of a badger, and is very voracious and savage, living in burrows under ground. The habitat of the ursine opossums is Tasmania, where they were formerly very common. The neighbourhood of Hobart Town was until a late period infested with them, and they proved most destructive to poultry and other domestic animals. Even now they are by no means uncommon, although they have gradually retired from the habitation of man. The body is covered with long, coarse black hair, irregularly marked, with one or two blotches of white on the shoulders or throat. The tail is slightly prehensile.

Even in a state of confinement they are untameably savage; biting severely, and uttering at the same time a low yelling growl. The specimen formerly in the gardens of the Zoological Gardens was a snarling surly creature. At Hobart Town a couple of these animals, a male and female, were chained together in an empty cask, and there they shewed the same savage disposition. They were continually fighting; the female, it was noticed, generally conquered. The ursine opossum, kangaroo fashion, often sits on the hind parts, and uses its fore-paws to convey food to its mouth. It cracks the largest bones asunder with ease, so strong are the muscles of its jaws. In action and gait it strikingly resembles those of the bear. Its vulgar name is the Native Devil.

THE SQUIRREL OPOSSUM.

(Didelphys sciurea.)

The fur of this animal is long, soft, and very close, of a brown or greyish colour on the back; the under parts of a yellowish white. The length of the animal is about eighteen inches, exclusive of the tail, which is prehensile, broad at the base, tapering to the end, and naked on the under side; its length about twelve inches. The eyes are full, prominent, and of a red colour. There are five claws on the fore feet, and four on the hind feet. It sits up to receive its food, which it takes with the fore paws, and with considerable dexterity. It feeds chiefly on vegetables. The female is furnished with a pouch.

The squirrel opossum is a native of New South Wales.

The Kangaroo-rat (*Hypsiprymnus Potoroo*), is found only in New South Wales, being about the size of a rabbit, and resembles the kangaroo in form, colour, and general habits: it burrows in the ground.

THE FLYING OPOSSUM.

(Pataurus sciurus.)

Among the most singular of marsupial quadrupeds is the flying opossum. It is peculiar to New South Wales, where, by some of the colonists, it has been called the flying squirrel; by others, the flying fox.

Although nearly resembling the opossum family, yet certain anomalies distinguish this creature. Its flying apparatus is an extraordinary peculiarity, consisting of a loose membrane which extends laterally between the fore and hind feet. This membrane makes the animal more buoyant, enabling it to descend safely from great heights, and assists it in making bounds many yards in length. The tail is long and brushy, but not prehensile. On the fore legs it has five toes, with a claw on each; on the hind ones, four toes, and a long thumb, which enables the animal to use it as a hand, the three outside claws of the hind feet not being separated like the others. Its nose is pointed; its ears large and erect; the fur of a fine delicate texture, of a beautiful dark colour, very glossy, and mixed with grey; the under parts are white. On each hip is a large tan-coloured spot: the fur is continued to the very claws.

In common with many animals of New Holland the flying opossum lodges in hollow trees, to which retreat being driven by dogs it may there be taken. The hunting of these creatures commonly takes place on a moonlight night; the ordinary time for feeding being during the night.

THE WOMBAT.

(Phascolomys Wombat.)

This singular creature has been placed by Cuvier among marsupial animals, since, like the opossum, it

carries its young in a pouch, although in fact it forms a species isolated in nature, and is the type of a genus, itself constituting that genus.

It is a native of New Holland, and its size about that of a badger. It burrows in the ground, which it does so rapidly that it is seldom to be seen. Its food consists of green and withered vegetables. The colour of the wombat is a brownish cinnamon, rather paler under the neck, and round the ears, than elsewhere.

Two of these animals may be seen (1851) in the Zoological gardens, Regent's Park. They appear to be quiet, unoffending, and stupid. No kindness seems sufficient to attract their sympathy; nor any violence to excite them to fear or anger: perhaps, no animal in existence is naturally more completely passive.

CLASS I.—MAMMALS.] [ORDER VIII.—QUADRUMANA.

THE ORAN-OUTANG.

In Heb. *Koph.*—(Simia satyrus.)—In Eng. *The Walker.*

"*For the king's ships went to Tarshish with the servants of Huram: every three years once came the ships of Tarshish bringing gold and silver, ivory and* apes, *and peacocks.*"—2 Chron. chap. ix., 21.

Quadrumanous, or four-handed animals form an interesting order, from their near approach to the human form; the skeleton of the larger species of this order so closely resembling that of man, that an inexperienced eye might pronounce them identical. Still, there are particulars in which they essentially

OURANG-OUTANG.

differ. The erect posture of man is peculiar to himself; animals of this class have the toes of the hinder feet similarly constructed as those of the fore feet, the larger toe, or thumb, being equally free, and opposed to the other toes, alike in the hind as in the fore feet. This gives them a facility in climbing, though it prevents them from comfortably walking erect. The number of teeth in all the monkey tribe is precisely the same as in man.

Monkeys are chiefly found within the tropics, being largely scattered over the woods of Africa, in most parts of India and its isles, and in the southern parts of China, Japan, and South America.

This class of mammals has been divided into three parts, subject, however, to certain anomalies, viz:— apes, or such as have no tails; baboons, or such as have short tails; and monkeys, or such as have long tails. The precise line of demarcation, however, it is often difficult to determine.

The oran-outang is the largest of all the ape kind, and makes the nearest approach to the human figure. Still the interval which separates the two species is immense. The resemblance in figure and organization, and the movements of imitation which seem to result from these similarities, neither make the ape approach the nature of man, or elevate him above that of the brute. We have no sympathy with modern pantheism, which would ascribe the being and superiority of man to an original "embryon point, or microscopic being," in opposition to the positive declaration of Scripture, which refers the creation of man and animals to the immediate finger of God. The blasphemous sentiment of Darwin, contained in

would entice them to play by striking them with its hand as they passed, and then bounding from them, but allowing them to overtake it, and engage in a mock battle. The oran-outang was observed to take but little notice of some small monkeys on board, or ever to romp with them, although the monkeys seemed to have a predilection for its company, always making way to its resting-place whenever they chanced to break loose. On one occasion three monkeys confined in a small cage narrowly escaped being thrown overboard by the oran-outang, but whether in jest or earnest scarcely appeared. Although this creature was generally quiet and good-tempered, yet when refused what it wanted, or otherwise thwarted, it would exhibit such paroxysms of passion as seemed to threaten suicide itself, suddenly starting up, uttering the most piercing screams, and then rushing furiously over the side of the ship and disappearing.

The habits of the oran-outang in its native woods are but very imperfectly known.

The word APE only occurs twice in the sacred volume: the particular species referred to cannot be identified.

THE CHIMPANZEE.

(Pithecus troglodytes.)

ALTHOUGH the Chimpanzee has often been seen by travellers, still, from its being a solitary and swift animal, but few opportunities occur of knowing much of its habits. At the beginning of the year 1836 a

young female chimpanzee arrived at the Regent's Park gardens, having been brought from the south-west coast of Africa, about 120 miles in the interior, from Grand Bassan. The mother was nursing it in her arms when she was shot, the young one being then secured. Hopes were entertained that this curious specimen might have been reared to maturity; in this, however, the proprietors of the gardens were diappointed, since, after a few months, it died. An adult chimpanzee has never been seen in this country. The habits of the one just referred to were those of a child. It had, indeed, the look of an aged person; in other respects it was a mere baby. Everything given to it, whether edible or not, was tested by being put to the mouth. It was usually kept in a cage, in which a swing had been placed, and which it delighted to employ, throwing itself into a variety of attitudes, bespeaking its security, and perfect fitness for the waving branches of the forest. It ran, or rather hobbled, quickly, generally assisting itself by resting the knuckles of the two first fingers of the hand on the ground; notwithstanding it had the capability of walking perfectly erect. It grasped as firmly with its hind feet as with those of the front feet, and when grasping its perch, or the back of a chair, could throw itself completely backward, and raise itself to its previous position. With its keepers it was perfectly familiar, playing with them like a child, now running round them, now dodging them, now climbing up them, and throwing its arms around their necks.

The chimpanzee, judging from the specimen before mentioned, is gentle in disposition; but when put

out of temper evinces its displeasure by a hoarse guttural sound, protruding the lips, and looking at the offender with expressions of anger. It, however, never showed that restless quickness so observable in the monkey, or anything approaching to chattering and grimace. Some have said that man is the only *thinking* being, others that *laughter* is peculiar to man. To the latter propensity this animal made a very near approach; for, when at play, and smartly tickled, its countenance exhibited what most would call a decided laugh. If neither *thinking* or *laughter* be peculiar to man, perhaps he may safely be denominated the only *smoking* animal!

In captivity the favourite food of the chimpanzee is fruit and vegetables, although it readily takes cooked meat also. In its native forest, it doubtless confines itself to a farinaceous diet. Like animals of a feebler grade, it soon becomes acquainted with the person who feeds it. The chimpanzee soon knows its owner, and its master's crib.

Snakes are known to be great enemies to monkeys, feeding even upon the larger kinds of them, and which produces a kind of instinctive fear of these reptiles. To ascertain this fact, the chimpanzee, at the Regent's Park, was shown a large snake, at the sight of which the creature was at once filled with terror, hiding itself in a corner. The snake being put into a basket, and the lid closed, an apple was placed upon it. The apple was admired, but nothing would induce the chimpanzee to approach the basket. Yet this animal had no fear of a dog, for in the same room in which it was kept was a bitch with a litter of puppies. To her kennel the

chimpanzee would go, taking up the puppies one by one, gravely looking at them, and then gently replacing them; and this was done amidst the continued snarling and barking of the mother.

At night-fall this creature retires to its bed of blankets, covering itself up, usually crossing its arms over its chest, burying its face up in the blankets, and settling down to sleep.

THE BARBARY APE.

(Simia inuus.)

This animal is found in most parts of Africa, from Barbary to the Cape of Good Hope. Being much more hardy than the larger apes, it has remained for years in this country in good health. An ape of this kind, known by the name of Jacko, ascended several times from the Surrey Zoological Gardens, in a balloon, and descended with a parachute in safety.

The Barbary ape is distinguished for its wildness and untractableness. Its head is large, and the nose prominent: it has also cheek-pouches, which it fills with food before beginning to eat. The teeth are large and strong; the ears round; the body of a brown colour, inclining to green. Its height, when erect, is about three feet. It is a remarkable fact, that our anatomists have only of late years discovered, that the dissections of Galen were performed, not upon the human subject, but upon the Barbary ape; so perfectly conformable are his descriptions to the structure of the human frame.

THE RIBBED-NOSE BABOON.

(Simia maimon.)

Baboons differ from animals of the ape kind both in appearance and habits. Their body is thick, compact, and nervous; their disposition fierce, untractable, and libidinous. This latter propensity renders them singularly disgusting to females, whom they will often notice in a manner which need not be described. In a state of captivity they must be closely confined, since they seek every opportunity of shewing their savage and vicious propensities.

The habitat of baboons is the hottest parts of Africa, although not exclusively confined to those regions. Their food chiefly consists of succulent fruits, which they very dexterously throw from one to another, and by this means do incredible damage in a short time.

These animals seldom breed in captivity. The female brings forth only one young at a time, which she carries at her breast, and in her arms. When the mother jumps from bough to bough, the youngster clings so closely, that it is in no danger of being shaken off.

The ribbed-nose baboon is one of the largest of its kind, often exceeding five feet in height. It is extremely fierce, libidinous, and strong. It is distinguished by broad ribs on each side of the nose, of a fine violet blue colour: a bright vermillion line is found a little above the eyes, and which, running down on each side of the nose, spreads over the tip of the muzzle. The insides of the ears are blue,

THE RIBBED-NOSE BABOON.

THE SPIDER AND BONNETTED MONKEYS.

softening to purple, and terminating in vermillion; the posteriors are also of a vermillion colour, and the colour on the hips graduate from red to blue. The voice is strong and harsh, much resembling the growl of the lion. Its ordinary position is that shewn in our engraving. Altogether it is a most disgusting creature.

THE PIG-TAILED BABOON.

(Simia nemestrina.)

The Pig-tailed Baboon is a native of Sumatra and Java, and is the least of the baboon family. It is also comparatively mild, gentle, and tractable. Though lively and frolicsome, it possesses but little of that impudent petulance for which its congeners are so remarkably characterized. The muzzle is large and thick, the face and ears naked, and of a flesh colour; its general colour is dark olive, palest on the belly; the eyes are hazel; the jaws furnished with cheek-pouches; the posteriors void of hair, and red.

Amongst the singular propensities of this animal, in common with many of the monkey kind, may be reckoned a remarkable greediness for tobacco, mustard, snuff, and other stimulants, which it greedily devours, without the slightest inconvenience.

Baboons of this species are gregarious. Assembling in large companies they often do considerable damage to gardens and cultivated fields; eating much, carrying more away in their cheek pouches, and wantonly destroying most of all.

THE FAIR MONKEY.

(Simia Mico.)

Monkeys are at once numerous and various. Yet it is probable, that resembling each other so nearly, their variations, as among dogs, are continually increasing. They so seldom breed in confinement, that their history and habits, as practised in their native wilds, are very imperfectly known. Cunning, however, seems a characteristic mark of the whole family. Of this one instance will suffice.

A monkey belonging to a captain in the navy, was remarked on board by the sailors as a *gentleman* of excellent humour, and hence almost adored. Pug's owner, however (for that was the monkey's name), wishing to consummate his bliss, procured him a wife. For some weeks he shewed her every sort of attention. He then grew cool, and jealous of any sort of kindness shewn her by his master, and used her cruelly. As female hearts bear a great deal, this treatment only made her wretched, without killing her. Pug then changed his battery, made up matters by degrees, and appeared as fond of her as ever. One morning, when the sea ran very high, he seduced her up aloft, and seemed shewing her some distant object from the yard-arm; when, all of a sudden, her attention being fixed, he canted her into the sea, (where of course she was immediately drowned), and came down in high spirits.

The Mico is thought to be the most beautiful of this numerous race. Its head is small and round; face and ears of so lively a vermillion colour, as to

THE FAIR MONKEY.

MONA AND GREEN MONKEYS.

appear the effect of art; its body is covered with long hair, of a bright silvery whiteness, and uncommon elegance; tail long, and of a shining dark chesnut colour.

Its habitat is South America, frequenting the banks of the river Amazon.

THE GREEN MONKEY.

(Simia sabæa.)

The Green Monkey is another singular variety, receiving its name from the fine green colour of the upper part of its skin; the throat, belly, and inner sides of the limbs being of a silvery white. The length of the body itself is only thirteen inches; that of the tail eighteen. Its height eight inches and-a-half.

It is common in the Cape de Verd Islands, and the East Indies: it is also found in Northern Africa. Adanson relates that the woods along the river Niger, are full of green monkeys, which, from their colour, are scarcely discernible among the branches of the trees where they live.

This species being found in Mauritania, and in the territories of ancient Carthage, M. Buffon, the celebrated naturalist, thinks it probable, that this creature was known to the Greeks aud Romans, and that it was one of those long-tailed monkeys to which they gave the general name of Callitrix. Most of the monkeys we have described, may be seen in the extensive menagerie of the Regent's Park.

THE RING-TAILED MACAUCO.

(Lemur catta.)

The singular animal now to be described greatly resembles the kangaroo family, progressing by a sort of gallop or canter, rather than a walk: its tail is carried nearly erect; but which, when the animal is at rest, is either twisted round the body, or brought over its head. In Madagascar, and the neighbouring isles, they are seen in troops of thirty or forty together.

This playful and harmless creature, when taken young, may easily be domesticated.

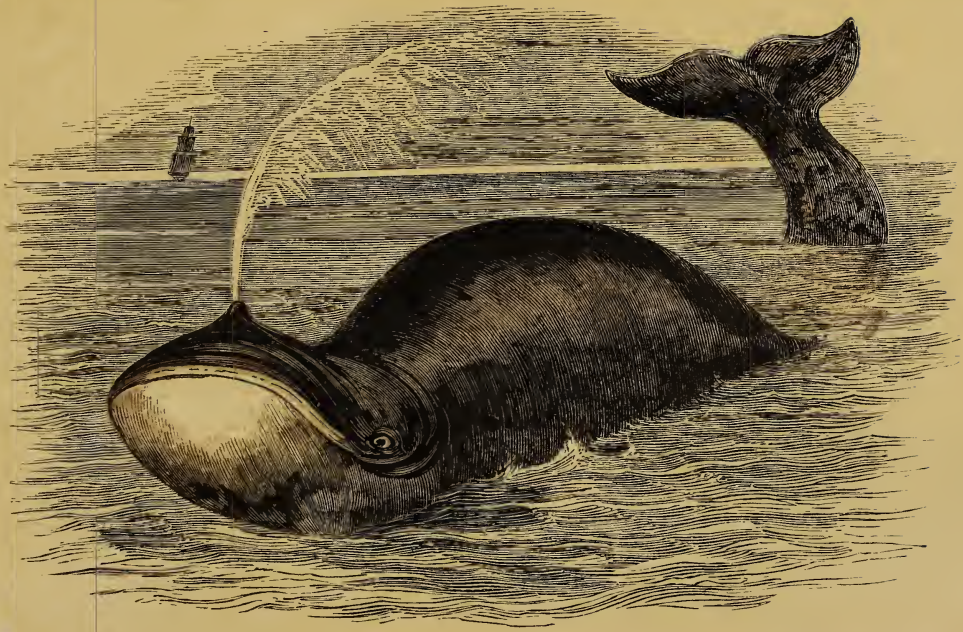
In size it nearly resembles a cat, while in the conformation of its paws it approaches the monkey kind; its nose is long and sharp, like that of a fox. It may justly be pronounced a beautiful animal. Its body and limbs are long and slender; its tail very long, and marked with alternate bars of black and white; its ears are large and pointed. The general colour of the macauco is reddish ash; the head, throat, and belly being white: the eyes are large, and surrounded with black.

THE YELLOW MACAUCO.

(Lemur potto.)

The yellow macauco likewise greatly resembles the opossum: its entire length from nose to tail does not exceed nineteen inches. The head is flat and broad;

RING TAILED AND YELLOW MACAUCOS



THE GREENLAND WHALE.

the ears short; the eyes small; the body long and slender; the legs and thighs short and thick. On each foot are five straight toes. Its fur is short, soft, and glossy, of a dark colour, mixed with yellow on the back; the cheeks, the inside of the legs, and belly are yellow. Along the back, from head to tail, there is a broad dusky stripe. The tail is nearly as long as the body, of a bright tawny colour, mixed with black, and is likewise prehensile, catching hold of anything with it, and suspending itself by it.

These animals are found in Africa; and have the reputation of being exceedingly good-natured and sportive.

CLASS I.—MAMMALS.] [ORDER IX.—CETACEA.

THE WHALE.

HEB. *Tannin.*—(Balæna mysticetus)—ENG. *The Strong-one.*

"*And God created great* WHALES."—GENESIS, chap. i., 21.
"*And I will make Jerusalem heaps, and a den of* DRAGONS."—JEREMIAH, chap. ix., 11.

To some of our younger readers it may appear strange that whales should be ranked amongst MAMMALS rather than with fish. But when it is remembered that these monsters of the deep have no affinity whatever with fish, excepting their outward appearance, and that they live with them in the same element, the wonder will cease. All the *cetaceans*, whether carnivorous or herbivorous, respire by means

of lungs, and are, therefore, obliged frequently to come to the surface for air; they have all warm blood; their ears are open externally, although with very small apertures; their generation is viviparous, bringing forth their young alive; their suckling their young by means of teats; the incessant care and love which the mother ever evinces towards her offspring; these, with the details of their anatomy, sufficiently distinguish them from fishes.

The Greenland whale is by far the largest animal in creation. These monsters, inhabiting the regions of the North Pole, were formerly caught of greater size than at present. The incessant capture of them has doubtless lessened their longevity. The elder hunters were accustomed to meet with whales of more than a hundred feet long, and of immense bulk also, amounting, in many instances, to the weight of a hundred elephants. Of late years, however, they have seldom exceeded from sixty to seventy feet in length; they have also gradually receded from the shore, being only to be met with in the open sea, or among the ice-bergs of Davis's Straits. The fishing has, in consequence, been more hazardous, and less productive.

The mode of taking the whale will be described when we come to treat of the *cachalot* or spermaceti whale.

The back, tail, and upper parts of this creature are black; the under parts grey and white, with a tinge of yellow, becoming lighter in colour by age. The head is extremely large, forming nearly a third of the whole bulk. On the most elevated part of the head are the two blow-holes, or nostrils, about twelve

inches long, through which the creature respires, and which it has the power of closing on descending below the surface of the water. On each side of the jaw the plates of whalebone are situated, about three hundred in number, enclosing the tongue between their lower extremities, themselves being covered by the lower lip. The flippers, or pectoral fins are placed about two feet behind the angle of the mouth, and cannot be raised above a horizontal position: they are about nine feet long, and five broad. There is no dorsal fin. The body is thickest a little behind the flippers, whence it slightly tapers towards the head and tail. The horizontal tail is flat, semilunar, and indented in the middle, forming two pointed lobes. The eyes, which are situated about a foot obliquely above and behind the angle of the mouth, are not much larger than those of an ox, although the sense of sight, in the water, appears to be acute.

Davis's Straits may now be regarded as the peculiar habitat of the Greenland whale. The *balænæ Australis*, or antarctic whale, though generally resembling it, should be regarded as a distinct species. Multitudes of these balænæ were seen by Captain James Ross, R.N., during one of his expeditions, in high southern latitudes.

Although the Greenland whale acutely hears any noise made in the water, yet a loud sound in the air, when only at a ship's distance from it, seems to be disregarded. The usual rate of swimming exceeds four miles an hour; but when harpooned it will descend at a velocity of seven or eight miles an hour, and when alarmed can sink in five or six seconds far

below the reach of a human enemy. The whale, however, cannot remain under water longer than from fifteen minutes to half-an-hour, when it must come to the surface to breathe; after which having made eight or nine *blows*, which it does in about two minutes, it can descend as before. It has beside the power of spouting out water from the nostrils several yards high, and which is chiefly done when alarmed, or after a long stay under water.

The food of the Greenland whale chiefly consists of the *clio borealis*, a small kind of periwinkle. Indeed, the gullet is so small, that it can only swallow very small animals. When the whale feeds it swims rapidly below the surface with open jaws; a stream of water enters them, and with it myriads of small marine animals; the water finds an outlet at the sides; but the thick internal hairy apparatus of the whalebone does not permit one of those animals to escape.

Greenland whales are usually found alone, or in pairs: it is an accidental circumstance which makes them gregarious. The period of utero-gestation is about ten months, the mother suckling and protecting her young one with anxious solicitude. It not unfrequently happens that the young whale is, in preference, struck by the hunter, since the affectionate mother will rather fall a victim herself, than leave her offspring to the mercy of their common persecutors.

To civilized nations the whalebone, and the oil made from the fat or blubber, are alone the objects of enterprize. The inhabitants of the dreary arctic regions, however, depend upon the whale for everything. They eat its flesh and fat; they convert

THE SPERM WHALE

the membranes of the stomach into clothing; the thin transparent *peritoneum* serves the place of glass for their huts; the bones are converted into props for their tents, aid them in building their boats, and supply them with harpoons and spears; whilst the sinews furnish them with thread.

The Jews were certainly not acquainted either with the Greenland or Southern whale. The creation of great whales mentioned by Moses must therefore refer to some other animals, probably to crocodiles.

THE CACHALOT, OR SPERM WHALE.

(Physeter macrocephalus.)

NEXT in size to the Greenland whale, and of much greater value, is the cachalot, or sperm whale, the chief habitat of which is the Southern Ocean, on the coasts of America, Japan, New Guinea, &c. The largest ever taken have little exceeded eighty feet in length; the depth of head from eight to nine feet; breadth from five to six feet; the depth of body seldom exceeding twelve or fourteen feet; circumference about thirty-six feet; the pectoral fins about six feet long, and three broad. The cachalot is by no means a sightly animal; on the contrary, its clumsiness and bulk make it a disgusting object of deformity. The head is thick and blunt, constituting more than a third of the entire body; a large protuberance presents itself at its junction with the body, forming the thickest part, which from thence tapers

off to the tail, but does not become much smaller for about another third of the whole length, after which the body so contracts that towards the tail it is not thicker than that of a man's. It then expands on either side into the flukes, which are each about six or eight feet in length, and from twelve to fourteen feet in breadth. The head, viewed in front, presents a broad flattened surface, rounded and contracted above, considerably expanded on the sides, and gradually contracted below, not unlike, in the opinion of some, the cut-water of a ship. Each nostril, or blowing-hole is about a foot long. In the right side of the nose is a *case*, or cavity, for secreting and containing an oily fluid, which after death concretes into a granulated yellowish substance, technically called *head-matter*, and known as spermaceti. In this cavity of the larger whales more than ten barrels of spermaceti will be found. Beneath the case and nostril is the elastic junk, formed of dense cellular tissue, strengthened by strong tendinous fibres, and infiltrated with very fine sperm oil and spermaceti. The mouth extends nearly the whole length of the head. The lower jaw is furnished with teeth, fifty-four in number. The tongue is small and white; the throat capacious enough to give passage to the body of a man, presenting a striking contrast to the small gullet of the Greenland whale. At a short distance behind the eyes are the external openings of the ears, sufficiently large to admit a small quill.

The skin of the whale is smooth, though in old age it becomes somewhat wrinkled. The head, back, and tail are extremely dark; but the upper parts are lighter,

the breast being of a silvery grey. In young whales the black skin is about three-eighths of an inch thick: in old ones it is not more than one-eighth. Immediately beneath the black skin is the blubber or fat, of a light yellowish colour, producing, when melted, sperm oil.

The spouting of the whale deserves a particular notice. At very regular intervals of time the snout of the animal rising above the surface, throws up a quantity of water in a continuous stream, and which at a distance appears thick, bushy, and white. This spouting continues for about three minutes, and in favourable weather may be seen from the mast-head at the distance of four or five miles. At each breathing the whale is believed to make from sixty to seventy expirations, remaining at the surface for about ten minutes. The breathing finished, the head sinks slowly, the flukes being lifted high into the air, when the animal, having assumed a straight position, descends perpendicularly to an unknown depth: the whale can continue thus hidden beneath the surface for rather more than an hour, when it must again return for the purpose of respiration.

The sperm-whale, notwithstanding its capacious gullet, usually feeds upon small fish, though a moderately sized salmon has been known to eject from its stomach. It does not, however, usually aim to devour the larger fish, but contents itself with smaller fry, the food consisting for the most part of cuttle-fishes, with which the southern seas always abound.

Sperm whales are gregarious, five or six hundred

having been seen in *one school.* The *schools,* as the sailors call them, are of two kinds, one consisting of females, the other of young males not fully grown. With each female school are two or three large *bulls,* technically called *schoolmasters.* The full grown males almost always go alone in search of food : in the absence of the females they become very incautious, and are easily killed. The younger bulls are more desperate, and their capture is often attended with imminent peril to the hunters. A large whale will yield from eighty to a hundred barrels of oil. The danger of the southern whaling is greater than that of Greenland, arising chiefly from the sprightliness of the whales. One of their dangerous habits is denominated *breaching,* or leaping clear out of the water, and hereby, from their immense bulk, making a floundering which may be distinctly perceived at a distance of five or six miles. Another habit is called, *going head out,* a mode of progression which enables these monsters to go at the rate of ten or twelve miles an hour. Their most dangerous habit is that of *lob-tailing,* or lashing the water with their tails, a practice which often proves fatal to their pursuers, a single blow of the tail or flukes being sure to dash a boat to pieces thus stricken.

The female cachalot is somewhat smaller than the male : she breeds at all seasons, producing only one at a time, but sometimes two. Ten months is thought to be the period of her gestation.

To Great Britain the southern fishery is but of yesterday, although that of Greenland has existed for ages. Previous to the revolt of the North American colonies, this fishing was prosecuted by the settlers in

Massachusetts with considerable spirit. It was not until after the breaking out of the war between England and the United States that Great Britain embarked in this enterprize. Towards the close of the last century (1791) seventy-five vessels were employed in the trade. The fitting-out of a ship for this fishery requiring so considerable a sum of money, the trade may not always have been carried on even on so large a scale as that just stated. Ships of about three hundred and fifty tons are those usually employed for South-sea service, and when fully provisioned and ready for sea, will have required an outlay of from £12,000 to £15,000; the adventurer also having to wait three years for the return of his capital. From a return made to the House of Commons, it appears that in the year 1832, 5,576 tuns of spermaceti oil were the product of the British fishery.

The mode of taking the sperm-whale does not materially differ from that employed in the Greenland fishery. Every ship is provided with about six boats, to each of which belongs six men for rowing the boat, and a harpooner at the head of the boat, whose business it is to strike the whale. Two of these boats are constantly on the watch, at some distance from the ship, and are relieved by others every four hours. When a whale is perceived both the boats set out in pursuit of it, and if either of them can come up before the whale finally descends, the harpooner throws his harpoon at him. Whales coming to the surface only for the purpose of respiration, as already described, always keep the soft and vulnerable part of their bodies above water. As soon as a whale is struck

a signal is given to those in the ship. On perceiving this all the other boats are immediately sent out to the assistance of the first. The whale, finding himself wounded, dives off with prodigious violence, sometimes descending perpendicularly, at other times nearly horizontally, or at least to only a small depth below the surface. The rope which is fastened to the harpoon is about 400 yards long, and is properly coiled up, that it may freely be given out according to the demand for it. At first the velocity with which this line runs over the side of the boat is so great that it is wetted to prevent its taking fire, and in the event of the rope becoming in any way entangled, a man stands prepared with an axe to cut the rope, or the boat would inevitably be dragged under water by the whale. In a short time, when the strength of the whale begins to decline, the hunters, instead of letting out more rope, strive as much as possible to pull back what has been already given out, though, for their own safety, they always find themselves necessitated to yield to the efforts of the animal. Should the first line of rope be run out, that belonging to another boat is immediately fastened to the end of the first, and so on, instances having occurred in which the rope belonging to the six boats has been necessary, though not half that quantity is usually required. The whale not being able to continue long below the surface, comes up to *blow*, and being now fatigued and wounded, stays longer above water than usual. This gives another boat time to come up, and the whale is struck with another harpoon. He again descends, but with less force than before, and when he comes up again is

generally incapable of descending, but is killed by his pursuers with long lances, with which they are provided.

The whale being dead is towed to the ship, alongside of which he is lashed, and the blubber and head matter is carefully got on board, where it is at once boiled, and then stowed away in casks, and coopered. The sperm is found in no part of the animal but the head.

The captain, officers, and crew, all participate in the cargo obtained; a certain portion, according to previous agreement, belonging to each individual, which he sells on his return home. A surgeon is always taken out in these whalers; but one essential qualification which he must possess is, that he should be a *good fellow* at pulling a rope.

THE NARWHAL, OR SEA UNICORN.

(Monodon monoceros.)

THIS singular animal is deservedly ranked amongst the monsters of the deep, being of immense size, from thirty to fifty feet in length. The head forms about the seventh part of the entire body. The blow-hole is directly over the eye, which is small, the back rising gradually within a few inches of the flippers, where the body is thickest. Like the whale, the narwhal has short flippers, or pectoral fins, but none on the back; the tail is about twenty inches in length, to four feet in breadth; the colour blackish-grey above, with dark spots; the belly nearly white.

The most singular trait in this animal is, that being without teeth, it has a horn, or tusk, proceeding, not from the muzzle, but from the upper jaw. There are in fact two sockets for these incisors, although one only is generally developed. This horn, or tusk, appears mainly to be employed for piercing or catching its prey, for the animal being carnivorous, it would seem, notwithstanding the smallness of its mouth, to be capable of eating fish of large size; a skate, for example, nearly three times the width of its own mouth, having been found in its stomach. The tusk is of ivory, extremely dense, hard, and white, and is considered greatly superior to the ivory of the elephant.

These animals have had the credit of being the avowed enemies of whales. This, however, is believed not to be the fact. In their natural habits they are unoffending, like the whales themselves. They are often seen in companies of from fifteen to twenty, sporting around a ship, elevating their long tusks, and crossing them with each other, as if they were fencing. The narwhal is taken by harpooning, in the same manner as the whale, the blubber yielding a superior oil. The flesh and blubber are alike considered a dainty by the Greenlander, who also regards the narwhal as the herald of the whale, in whose neighbourhood the former is, it is believed, generally to be found, perhaps from partaking of the same food. The Greenlander often destroys the narwhal by driving it to fissures in the ice, where it comes up to respire.

The habitat of the narwhal is the Northern

THE WHITE WHALE.

THE BELUGA, OR WHITE WHALE.

(Delphinus leucas.)

THE general length of this animal is from twelve to twenty feet; its head being obtuse, its muzzle short and conical; it has eighteen teeth in the upper, and sixteen in the lower jaw. It has no dorsal fin, but flippers, or pectoral fins, like its congeners; neither has it any external ear; the mouth is small, and its blue eye not larger than that of a man's. Its colour is a yellowish-white, approaching to orange. The symmetry of the white whale is an object of admiration, suggesting the idea of perfect adaptation to a rapid progression in the water. The tail, which is large, is bent under the body in swimming, propelling the animal forward with the velocity of an arrow. From this swiftness their prey, consisting chiefly of salmon, cod, haddock, and flounders, rarely escape.

The chosen haunts of the beluga are Hudson's Bay, Davis's Straits, and Spitzbergen. The whale fishers seldom disturb these creatures, for, from their extreme activity they are difficult to strike; when stricken the harpoon frequently draws, and if it holds the capture is but of little worth. Hence they are not shy, but tumble around the ships in herds of forty or fifty.

The oil of the beluga is reported to be of the best, whitest, and finest quality, and of their skins a sort of morocco leather is made, which though thin, will resist a musket-ball. The flesh resembles beef, and when marinated with vinegar and salt, both it, and the fat, have no bad taste.

THE DOLPHIN.

(Delphinus delphis.)

The history of the dolphin was for ages embellished with fables. Pliny, one of our most ancient and accredited naturalists gravely assures us, that this animal has an affection for man, and is also fond of music. And, as if this was not enough, he tells us farther, that a boy for many years, was daily carried on the back of a dolphin to school across the arm of the sea from Baia to Puteoli. Whatever propensities the dolphins of antiquity may have possessed, no such things exist in modern times. On the contrary, the appearance of a dolphin sporting on the water is now witnessed by nautical men not without alarm, since it is believed to portend the approach of a storm. The figure of the dolphin by ancient and modern artists has, moreover, been greatly caricatured.

This creature is not uncommon in the seas of Europe. Its jaws are moderately elongated, and of equal length; each jaw being furnished with forty-two teeth, which are pointed and bent. The dorsal fin is nearer to the tail than the head. Its colour is black above, but fading insensibly to white below. In some cases the colour has been a dark blue. Its length varies from eight to ten feet. It is a most expert swimmer, and far from possessing the amiable qualities attributed to it, is extremely fierce and voracious.

Dolphins go with young ten months, and, like the whale, seldom bring forth above one at a time.

THE PORPESSE.

(Delphinus phocœna.)

The only remaining member of the cetaceous family, and the last of the mammals, which we propose to notice, is the porpesse, an animal well known to most of our readers who have gone to Margate by sea during the summer months. It is common in all the seas of Europe. Its length is from four to five feet; its muzzle short and convex; its teeth from forty to forty-six, which are irregularly placed in each jaw; it has a dorsal fin; the flippers or pectoral fins being of a brown colour; the upper part of the body is of a deep bluish-black, gradually assuming a polished silvery whiteness towards the belly.

Porpesses swim in shoals, driving their prey—mackarel, herrings, and salmon before them. During the fine weather of spring and autumn, they leap, roll, and tumble, in the manner so well known; and which also is thought to be their rutting season. They ascend very high up rivers in search of their prey, having often been noticed in the Loire, Charente, and Seine, in France. In May, 1842, two porpesses were seen rolling and sporting a little above London bridge, on the Surrey side. They seemed to disregard the numerous steam-vessels which were constantly passing, and to pay no attention to the wherries, some of which went close to them. One of them was hooked with a boat-hook; but they both eventually contrived to get clear away.

The period of utero-gestation with the female is believed to be six months; the young at the birth being about twenty inches in length. The mother suckles and watches over it, with the most tender care.

The agility of the porpesse in pursuit of the salmon is said to be an amusing spectacle: the efforts of the salmon to escape being diverse, while the porpesse counteracts such attempts with surprising adroitness. The salmon not unfrequently will spring high out of the water; but their ever-watchful foe bides their relapse, and by its rapid, quick, and well-directed turns, seldom fails to secure its prey.

A considerable quantity of very pure oil is produced from the fat which surrounds the body of this animal. The skin also, when tanned and dressed, is used for wearing apparel, and covering of carriages. Such immense shoals of porpesses are found on the western coast of Ireland, that it is believed that an advantageous trade would result from their capture, were boats, with proper implements, to be employed.

The flesh of the porpesse, as well as that of the dolphin, was once considered to be a great luxury, being served up at the tables of the wealthy both fresh and salted. Several porpesses were on the board at the great feast holden at the *intronazation* of George Nevell, archbishop of York, in the reign Edward IV. In Henry the Eighth's time it continued to be a royal dish, and was in fashion during the reign of Elizabeth. At a later period the porpesse was to be found on the table of Roman catholics on fish days, and during Lent. Modern navigators have not thought it an undesirable food.

THE GRIFFON VULTURE

THE GRIFFON VULTURE.

In Heb. *Aiyah*—(Vultur fulvus.)—In Eng. *The Screamer.*

"*There is a path which no fowl knoweth, and which the* VULTURE'S eye *hath not seen.*"—Job, chap. xxviii., 7.

The birds comprised in this order bear a relation in their mode of life to the *carnivora* among the mammals. Almost all of them live on animal food. Some take their prey alive; others clear the ground of the noxious remains of dead animals; others feed on fishes and reptiles; and a few species live chiefly on insects. Those which pursue their prey by day have hence been termed *diurnal* birds; others flying only in the twilight have been denominated *nocturnal.* The females are almost always larger than the males. The number of their eggs seldom exceeds four.

The griffon vulture, which we propose first to describe, inhabits the mountainous parts of the north of Europe, Africa, and Asia. Its head and neck are furnished with a white down; the lower part of the neck surrounded by rows of long slender feathers of a reddish-white colour; a spot is found on the middle of the breast, covered with white down; the body and wings are fawn-coloured; flag and tail feathers of a blackish brown; beak livid yellow; cere flesh-coloured; iris hazel-coloured; legs grey. Its length about four feet.

The nests of these birds are generally found upon the most elevated and inaccessible rocks, or on the highest forest trees. The eggs, which are of a dull

greenish-white, are usually two in number, but occasionally as many as four. They feed almost entirely upon dead carcases, to which they are frequently attracted in considerable numbers. It is no uncommon thing to see these birds perched upon a putrefying carcase for several days successively, since their practice is not to quit the banquet while a morsel of flesh remains. No portion is ever carried away, not even to satisfy their young; the half-digested food being disgorged from the maw for that purpose. Living victims are sometimes, but very rarely, taken; and then only such as are incapable of offering any resistance. After feeding, these birds may be seen for hours together in one unvaried posture, waiting until the work of digestion is completed. If attacked soon after taking a full meal, these gluttons are incapable of flight, until the contents of their stomach have been disgorged. When not encumbered by an excess of food they can soar, notwithstanding their magnitude, to such a height as to become invisible to human sight. In captivity, while furnished with a full supply of food, they appear indifferent as to the circumstances in which they are placed. A fine specimen of the griffon vulture may be seen in the Zoological Gardens, Regent's Park.

It has often been disputed whether these birds, in the discovery of their prey, are more assisted by sight than by smell. The sacred writer, Job, in the passage above quoted, seems to refer it to distinctness of vision. Probably both smell and sight assist the vulture in the discovery of its prey. The memorable words of the Redeemer are rather to be understood of the vulture than the eagle. Matt. xxiv. 28.

THE EGYPTIAN VULTURE.

(Vultur percnopterus.)

The head and fore part of the neck of this bird are covered by a naked skin of a livid yellow colour; the plumage white, excepting the large feathers of the wings, which are black; the feathers of the occiput are long and slender; the cere and bill of an orange colour; the iris yellow; the feet of a livid yellow, with black claws. The length about two feet and-a-half.

The Pyrenees, Switzerland, and Africa, are their habitat. They feed upon carrion and filth, and their use in removing these offensive objects, and destroying reptiles, occasions their being protected in some countries of the east, particularly Egypt, where they were anciently held in such veneration, that any person who destroyed them was punished with death. At this day, immense flocks of them are found in all the principal towns of Egypt, Syria, and Persia, mingling with other animals of similar propensities. They feed with the greatest familiarity even in the streets of the most populous towns, being, in fact, regarded as the common scavengers of the country. They are not pleasant objects to approach, from the disagreeable fetor of their breath, and uncleanly habits.

At Cairo their skins are sold and converted into dresses, but which always retain a stinking smell.

They make their nests among rocks, laying three and sometimes four eggs, which are white. The young are fed by the parents for the first four months.

THE CONDOR.

(Sarcoramphus gryphus.)

The condor is the largest of the birds of prey, and is a native of South America. He inhabits the mountainous districts of Peru and Chili, well deserving the appellation of "Lord of the Andes," over which he is accustomed to soar, amid regions of eternal snow, and at an elevation of more than fifteen thousand feet above the level of the sea. Here on the boldest points and crags three or four of these aërial monsters group together. They descend into the plains for prey, guided by an eye which serves the double purpose of telescope and microscope. In the rainy season they often frequent the sea coast in the evening, remaining there all night, and returning to the mountains in the morning. Their comparatively straight talons are but ill adapted for perching on trees, or carrying away prey of any size, though admirably fitted for tearing up the carcase of an animal already dead. The female makes no nest, but deposits her white eggs upon the bare rock. The habits of the condor are but imperfectly known. Our readers may satisfy themselves of its personal appearance by a visit to the Regent's Park Gardens, where a fine male bird of this species may be seen.

Mr. Darwin's observations on the condor may be depended upon, and are of a comparatively late date. On the 27th of April, 1834, Mr. Darwin shot a condor in Patagonia, which measured from tip to tip of the wings eight and a-half feet, and from beak to tail four feet. "It is," he observes, "a magnifi-

THE CONDOR.

cent spectacle to behold several of these great birds seated on the edge of some steep precipice."

The geographical range of the condor, according to the writer just referred to, is greater than has usually been supposed, being found on the west coast of South America, from the strait of Magalhaens throughout the entire range of the Cordillera. These birds were seen on a steep cliff near the mouth of the river Negro, in latitude 41° south, having wandered about four hundred miles from the great central line of their habitation in the Andes. Farther south, among the bold precipices which form the head of Port Desire, they are not uncommon; but only a few stragglers occasionally visit the sea coast. A line of cliff near the mouth of the Santa Cruz river was also frequented by these birds. Hence it is inferred that the presence of the condor is chiefly determined by the occurrence of perpendicular cliffs.

The young of these birds appear to be long in coming to maturity. It is thought that they cannot fly at the end of the first year. Mr. Darwin relates that at Concepçion, on the 5th of March, (corresponding to our September,) he saw a young bird, which, though in size little inferior to an old one, was completely covered with down like a gosling, but of a blackish colour; and that it would not be able to use its wings for many months to come. From this, and other circumstances, it seems probable that the condor only lays once in two years.

On Mr. Darwin's authority, likewise, it is thought that these birds generally go in pairs, although on

some basaltic cliffs of Santa Cruz, many scores were noticed to resort together; hence it is conjectured, that the condor must, to a certain degree, be a gregarious bird. Condors do not, on ordinary occasions, extend their daily excursions to any great distance from their regular sleeping places, keeping a constant look out for animals which have either died a natural death, or as more commonly happens, have been killed, and partially devoured, by wild beasts.

The condor is most tenacious of life. One of these birds had been lashed with a rope, and was otherwise much injured; yet the moment the cord was loosened, although surrounded by people, it began ravenously to tear a piece of carrion. Gluttonous although condors are, they can, nevertheless, submit to great abstinence. Between twenty and thirty condors were kept in a garden at Valparaiso, their owner feeding them only once a week, yet they appeared in pretty good health. Instances have been known in which they have passed five or six weeks without food, and not enduring much suffering.

Condors from their weight, rise from the ground with great difficulty, strongly flapping with their wings so to do; but once on the wing, their wheeling round and round at an immense elevation, presents a spectacle magnificently beautiful. "I watched these birds," says Mr. Darwin, "when at Lima, for half-an-hour, without taking my eyes from them. They moved in large curves, sweeping in circles, descending and ascending without once flapping. The head and neck were moved frequently, and

apparently with force; and it appeared as if the extended wings formed the fulcrum on which the movements of the neck, body, and tail acted. If the birds wished to descend, the wings were for a moment collapsed; and then, when again expanded with an altered inclination, the momentum gained by the rapid descent seemed to urge the bird upwards with the even and steady movement of a paper kite. It is truly wonderful and beautiful to see so great a bird, hour after hour, without any apparent exertion, wheeling and gliding over mountains and rivers."

THE KING VULTURE.

(Vultur papa.)

The African and Indian vultures so nearly resemble in appearance and habits those already described, that a distinct notice of each does not seem necessary. The king vulture, the habitat of which extends from the southern parts of the United States to about 32° south latitude, must be described. This bird is only occasionally found in Florida, though very common in Paraguay. Like its congeners, the head and neck are bare, but of a brilliant red colour; the beak is reddish, with a shade of black; cere bright orange, continued between the nostrils into a comb about an inch and-a-half long, loose in texture, and falling on either side of the bill when the head is erect. Round the eye is a scarlet circle; the iris nearly colourless; side of the head

purplish black. From the bright red of the upper part of the neck the colour gradually lessens in intensity, fading into orange and yellow towards the lower part. Round the bottom of the neck is a broad ruff of soft, downy, deep ashy-grey feathers. Back and tail-coverts bright fawn; quills, greater wing-coverts, and tail feathers, glossy black; legs and claws dusky black. Total length about two feet and-a-half. The expanded wings, are more than five feet across. The young, in common with many birds, take a considerable time before they assume the colour of an adult.

In all vultures the sense of smelling and vision are highly developed.

The expanse and strength of the wing in king vultures enable them to reach a lofty height, and there remain, bringing their wondrous powers of observation over a wide extent of country. Patient under hunger, these birds are believed never to attack birds and quadrupeds however small, while they are alive; though when pressed with hunger, from the want of their favourite carrion, they will feed upon snakes and lizards. A plentiful table during the summer months is spread for these epicures, when the lakes drying up, leave an abundance of putrid fish on the shore. The king vultures are thought to be solitary, or to live in pairs; but some travellers have stated that in Mexico they are to be seen in large flocks. The term *king* has been applied to this particular species from a tradition, that other vultures patiently stand by till this their monarch has finished his repast. From the superior strength and courage of these birds, the opinion pro-

bably, is not without foundation. The king vultures make their nests in the hollow of trees, laying two eggs only.

THE LÆMMER-GEYER

(Cypaetus barbatus.)

The Læmmer-geyer, unlike other vultures, far from having the neck bare, has it thickly covered with feathers; neither will it feed on carrion, unless very hard pressed by hunger. In its bold and predatory habits it greatly resembles the eagle, pouncing, with violent impetuosity, on animals exceeding itself in size; deer, goats, hares, and various large birds, being alike destroyed by this ferocious warrior. Its talons are of a straight form, which disables it from carrying its prey to a distance; the victim is usually devoured on the spot.

This bird is about four and-a-half feet long, and more than eight feet from wing to wing. A forked brush of long hair, divided at the point into two, proceeds from the cavity of the lower jaw at the beginning of the throat. The wings and tail feathers are ashy-grey, while the mantle, back, and wing coverts are deep grey-brown; the beak and claws are black; feet blue; iris orange; which colour likewise prevails on the lower part of the breast. The eye is surrounded by a red lid. Like many other birds, the plumage varies according to age.

The habitat of the læmmer-geyer is extensive, being found in the highest mountains of Europe,

Asia, and Africa. Formerly it was numerous in all the mountainous regions of the Tyrol, Switzerland, and Germany, but has now become one of the rarest birds of Europe. Its nest is found on the naked summits of precipitous rocks; the eggs, two, which are white, marked with brown blotches.

Bruce, the African traveller, tells us that this noble bird, in Abyssinia, is not an object of any chace or pursuit, or stands in need of any stratagem to bring it within reach. Upon the highest top of the mountain Lamalmon, while the traveller and his party were enjoying themselves after a toilsome ascent, dining, in the open air, with several large dishes of boiled goat's flesh before them, one of these birds suddenly appeared. It did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat. A loud shout was made, and the bird stood for a minute, as if to recollect itself, giving the party time to collect their arms. Mr. Bruce perceived that the attention of his new visitor was fully fixed upon the flesh, and though the traveller had walked up close to the bird, it deliberately put its foot into a pan where was a large piece in water about to be boiled, but the smart from the hot water made the bird leave the piece which it had held. Two large pieces lying near on a platter, a leg and a shoulder, the læmmer-geyer very deliberately trussed these with his claws, and looking, as the traveller thought, very wistfully at the large piece in the water, carried off what he had gotten. Not many minutes elapsed before the bird returned, the party loudly exclaiming, "He is coming, he is coming." During the interval a rifle had been prepared, and

the uninvited guest received a ball through his body, which proved fatal without a single struggle

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THE SECRETARY.

(Gypogeranus serpentarius.)

This singular bird is chiefly found in the eastern parts of south Africa. By the Dutch at the Cape it was called the snake-eater, appearing ever to be in search of serpents, not merely for the purpose of food, but for the sport or pleasure of killing them. In a country abounding with dangerous reptiles, therefore, the secretary is invaluable. In a state of nature it is wild and difficult of approach, but if taken young it may be easily tamed, and hence frequently found in the poultry-yard of the Cape colonists. Provided that this bird be well supplied with food, it does no injury to the poultry, but if overlooked in this respect by its owners, the secretary will take the liberty of helping itself to a duckling or a chicken. Its habits are strictly carnivorous.

In size, the secretary is about three feet in length; its eye full, and surrounded by a naked skin; the plumage bluish-grey, with a reddish-brown tinge on the wings; the greater quills are black; the throat and breast nearly white; the legs bright black. Its crest, consisting of black and grey feathers, it can raise or depress at pleasure.

These birds are not gregarious, but live in pairs. They build, if practicable, on high trees, or very close

THE GOLDEN EAGLE.

In Heb. *Nachar*—(Falco chrysætos.)—In Eng. *The Lacerator.*

"*Doth the* EAGLE *mount up at thy command, and make her nest on high? She dwelleth and abideth on the rock, and the strong place. From thence she seeketh her prey, and her eyes behold afar off. Her young ones also suck up blood: and where the slain are, there is she.*"—Job, chap. xxxix., 27—30 inclusive.

No words can more graphically describe the Eagle, that king amongst birds, than do these of the patriarch Job. As a family, eagles are very widely spread over nearly the space of the whole earth, and though each species varies in some minor particulars, yet, essentially, one general description may be given of them all. Their habits, also, are virtually the same. Of eagles, generally, it may be said that the bill is strong, of considerable length, and hooked towards the extremity; their legs are strong, nervous, covered with feathers or naked; the toes robust, and armed with powerful and very crooked claws; their wings long and muscular, while the first, second, and third feathers are shorter than the fourth and fifth. They are, moreover, never found in company, but in pairs, excepting during the season of incubation, when the male bird wings his rapid flight after his prey alone. Their nests, according to the sacred writer above quoted, *are on high,* on the inaccessible and craggy rock; *the young ones suck up blood;* the old birds *stirring them up in their nest, fluttering over them, spreading abroad their wings, taking up the young,* and *bearing them on their wings.*

Beside all this, eagles are all carnivorous, devouring nothing but what they themselves have taken, leaving the residue, after satisfying their own appetite, to less dainty feeders than themselves, never being in the practice of returning to the same carcase. The females of all eagles are larger than the males; they are also stronger, more courageous, daring, and cruel.

The golden eagle is in every sense a magnificent bird, being the largest of the species. The crown of the head and neck are covered with sharp-pointed feathers, of a bright rufous and golden tinge; the other parts of the body being of an obscure brown, more or less blackish according to age; three scales are found upon the last joint of all the toes. The male bird is about three feet long; the female three feet and-a-half; the spread of the wings from tip to tip, between seven and eight feet.

The high mountain ranges of the north of Europe form the habitat of this powerful bird. It is sometimes to be seen in England, but much more frequently in Scotland. Its prey consists chiefly of fawns, lambs, hares, and large birds. The eagle therefore is of necessity a very unwelcome neighbour. Nestling on the most precipitous rocks, the female lays two eggs, rarely three, of a dirty white colour, spotted with red. It soars to a prodigious height; and from this elevation can discover its prey at an immense distance, so clear and perfect is its vision. The eagle is remarkable for its extreme tenacity of life, whence doubtless originated the Eastern notion, that these birds possess the power of *renewing their youth*. To this circumstance the sacred writer appears to refer in Psalm ciii., 5. The young are said

to be long coming to perfection, varying their colour from year to year; and from this circumstance, it was but reasonable to expect that their longevity would be great. Keysler accordingly refers to an individual at Vienna, which lived a hundred and four years, though in captivity. Neither is their endurance of abstinence less remarkable, especially when deprived of exercise; for one taken from a fox-trap, refused food for five weeks, when it was killed. Redi informs us that he kept two eagles alive, the one for twenty-eight, and the other twenty-one days, without food. It should, however, be borne in mind, that the eagle, unlike the vulture, is never a gluttonous feeder.

Numerous stories are related of the amazing strength of this bird, and of its carrying off children as its prey. Ray, an author of undoubted credit, mentions, that in one of the Orkney islands, an infant of a year old was seized in the talons of an eagle, and conveyed about four miles to its eyry; while the mother, knowing the spot, pursued the bird, found her child in the nest, rescued it from its perilous situation, and conveyed it home unhurt. Such a story is quite within the sphere of possibility, and perhaps from the acknowledged courage of the bird, especially when it has young, of probability also.

The prowess of the golden eagle has long been known by the aborigines of America; a young Indian warrior glorying in his eagle plume as the most honourable ornament with which he can adorn himself. So highly are these plumy ornaments prized, that a warrior has often exchanged a valuable horse for the tail-feathers of a single eagle.

THE WHITE-TAILED EAGLE.

(Falco albicilla.)

This bird, often called the sea eagle, is rather smaller than the golden eagle, but possesses great strength, vigour, and courage. The beak, cere, and eyes, are of a pale yellow; the space between the beak and the eye of a bluish colour, and thinly covered with hair; the sides of the head and neck are of a pale ash, mixed with brown, which is the prevailing colour of the plumage; the quill feathers are nearly black; the breast marked with irregular white spots; the tail, its leading characteristic, white; the legs are a bright yellow with black claws.

The white-tailed eagle is widely scattered over most of the countries of northern Europe; often to be seen on the coasts of England, Holland, and France, but is a permanent sojourner in Scotland. It is a very hardy bird, possessing the power of abstinence to an extraordinary degree, having existed for several weeks together without any sustenance.

In Greenland these birds are killed with arrows, or caught in snares laid on the snow, their flesh being regarded as a dainty. Under garments and beds are made of their skins, which are sewed together. The bill and claws serve as amulets in the treatment of various complaints.

The nest of the white-tailed eagle is usually built upon a lofty tree: two eggs are generally laid, sometimes three. The female has the character of being but an indifferent mother. After a short time, she unceremoniously drives the young from the nest.

THE OSPREY.

(Falco haliætus.)

The osprey is the smallest of the eagle family, its entire length scarcely ever reaching to two feet; and its breadth, from the tip of one wing to the other, five feet. The bill is black, with a blue cere; the eye yellow; the upper parts of the body brown; the under-parts and breast white, slightly spotted with brown; the crown of the head is also white; the legs are short and thick, and of a pale blue colour; the claws are black.

This bird is believed to be more numerous than any of the large birds of prey, being thickly scattered over the whole extent of Europe, and northern Africa also. Its haunts are on the sea-shore, and on the borders of lakes and rivers. It is a most expert *fisherman*, darting upon fish, its principal food, with great rapidity, and undeviating aim. Nature seems to have formed this bird for catching fish, the outer toe being larger than the inner one, and turning easily backward, by which means its slippery prey can be more readily secured.

Sometimes the osprey is known to select the lofty rock, or the tall tree for constructing its nest, but more generally it builds on the ground, among reeds, laying three or four eggs.

The incubation of birds is one of the mysteries of nature. Why birds of the same family should choose such different localities for building, or why they should alter their usual locality, are wonders which we cannot explore.

THE SEA EAGLE.

THE WHITE-HEADED, OR BALD EAGLE.

(Haliætus leucocephalus.)

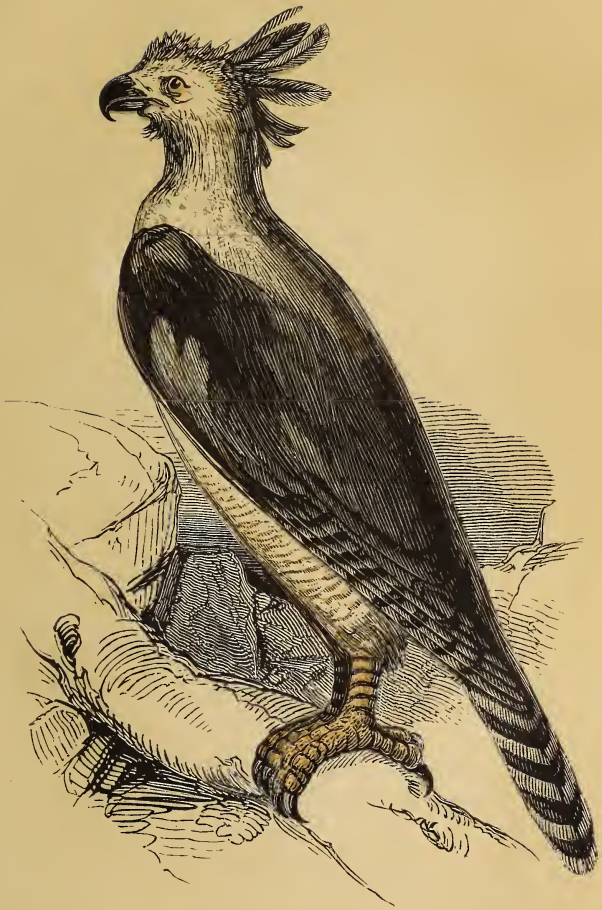
This bird has often been confounded with the white-tailed or sea eagle, already described; the young of this species may, before its fourth year, easily be mistaken; but after that time a final development takes place, which at once distinguishes it from the remainder of its tribe. This character consists in the pure whiteness of its head and neck, from whence it has derived the popular, though inappropriate title of the bald eagle, by which appellation it is most commonly known. The upper parts of the body are deep brown; the under parts a dirty white, mixed with brown. The quill feathers, and primary wing-coverts are black; the beak a dusky brown; the cere and legs yellow, with talons nearly black; the tail is perfectly white.

The bald eagle is found in every part of the United States, preferring, however, the low lands of the sea-shores, those of the larger lakes, and the borders of rivers and very mountainous districts. If the habitual residence of this bird be not the regions of the Arctic circle, certain it is, that it is an early visitor to the fur districts of Hudson's Bay. It sometimes builds as far south as Virginia, although its nests are not so commonly found within any part of the United States, as in the fur countries.

The work of incubation begins in January, the nest being usually placed on the top of a very large tree, which happens towards the summit to be destitute of branches. It is of immense size, often as

much as from five to six feet in diameter, and when finished, about the same in depth, receiving some augmentation each season. The eggs are most commonly two or three, and of a dull white colour.

The Yankees have made this bird the symbol of the United States. In this choice we quite agree with Franklin, that our brothers, or rather our sons of the American Union, have not shown their good taste. "For my part," says the Doctor, "I wish the bald eagle had not been chosen as the representative of our country. He is a bird of bad moral character; he does not get his living honestly. You may have seen him perched on some dead tree, where, too lazy to fish for himself, he watches the labours of the fishing-hawk, and when that diligent bird has at length taken a fish, and is bearing it to his nest for the support of his mate and young ones, the bald eagle pursues him, and takes it from him. With all this injustice, he is never in good case, and like those among men who live by sharping and robbing, he is generally poor, and often very lousy. Beside, he is a rank coward; the little king-bird, not bigger than a sparrow, attacks him boldly, and drives him out of the district. He is therefore by no means a proper emblem for the *brave and honest Cincinnati of America, who have driven all the king-birds from our country!*" Notwithstanding this little error of judgment, we wish every possible prosperity to young America; and that the lessons which the GREAT EXHIBITION has taught, or may yet teach, may be eminently useful. GOD GRANT THAT THE UNITED STATES MAY EVER BE GREAT AND FREE!!



THE HARPY EAGLE.

(Harpyia destructor.)

The last of the eagle family which we propose to notice, and which may be seen in the Zoological-gardens, Regent's-park, is the harpy eagle, remarkable for its destructive habits, being quarrelsome, sullen, and fierce. Its habitat is Guiana, and the neighbouring districts, of South America.

The robust legs, and extraordinary curvature of the beak and talons of this bird sufficiently demonstrate its predatory powers. The sudden curvature downward of the upper mandible, with a strong anchor-hook towards the point, which is excessively sharp, together with the comparative shortness of the wings, readily distinguish this marauder from other eagles. The length from beak to tail is about three-and-a-half feet. The head is covered with a thick downy plumage of slate-grey, and a crest of black and grey feathers, rising from the back of the head, which the bird has the power of raising or depressing. The back, wings, and fore-part of the neck are black; the feathers of the back somewhat lighter; the breast and legs are white, the latter variegated with black bars. The tail is ashy, banded with black; the beak and claws black; the legs, partly feathered, are dusky yellow.

In its native forests of Guiana its tyranny extends not merely to birds, and small animals, but to the most ferocious, and even to man himself; a single blow of its beak having been known to cleave a man's skull. It more commonly feeds upon sloths,

fawns, and other young quadrupeds. A harpy eagle having been taken when young, and tamed, was notwithstanding so spiteful, that if an unfortunate monkey happened to approach too near its cage, the winged savage would seize and devour it entire, with the exception of a few of the bones, having first carefully skinned it.

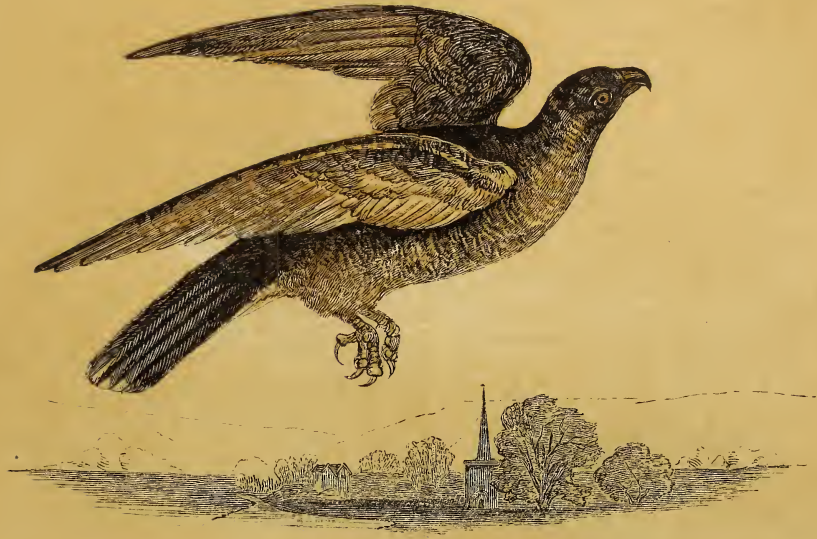
THE FALCON.

(Falco communis.)

The falcons, like the eagles, have various minor distinctions of size and colour, which distinguish one kind from another; yet are there certain general characteristics by which they are all known. Their bill is short, and bent from its base: the upper mandible having one, and rarely two strong teeth, which lock into hollows in the lower mandible; legs robust; toes strong and long, armed with crooked and sharp claws; the back toes, or tarsi, short; wings long, the first wing-feather and the third of equal length, the second longest; this particular organization giving amazing rapidity of flight.

These birds prey habitually on living animals, and show much address in surprising and seizing their prey. They nestle in the crevices of rocks.

The greater number of the falcon family were formerly employed with success in hawking. The name, *noble birds of prey,* which has been applied to them, comes from the prerogative once attached to falconry, the practice of which was only permitted to nobles.



THE FALCON

This gave rise to the common saying, that a gentleman may be known by his *hawk*, *horse*, and *greyhound*, the first of these being carried on the hand. Even ladies in those days were partakers of this gallant sport, and are often represented in sculpture with hawks on their hands.

The mania of hawking is now laid aside, and what was once regarded as a noble diversion, quite neglected; agricultural improvements, and inclosure of lands, would but ill accord with the pursuits of the falconer, who requires a large and extensive range of country, where he may pursue his game without molestation to himself, or injury to his neighbour. The expense which attended this sport was very considerable, and therefore confined to princes and men of the highest rank. In the time of James I., Sir Thomas Monson is said to have given a thousand pounds for a cast of hawks.

The people of England formerly took as much pleasure in falconry, as they now do in hunting and racing. The art of teaching one species of bird to fly at, and catch another, probably took its rise in the East, and that from remote ages; whence it afterwards came into Europe. From the Heptarchy to the time of Charles II., falconry was one principal amusement of the gentry of England; a person of rank scarcely stirring out without a bird upon his hand. King Alfred, A.D. 872, had his falconers among those persons whose skill in different professions he encouraged.

In Domesday Book the practice of falconry is illustrated by numerous entries. In the 14th of Henry II., Walter Cnot one of the King's tenants,

rendered his rent at the exchequer in *three hawks* and *three girfalcons*. By the 34th Edward III. it was made felony to steal a hawk; to take its eggs, even in a person's own ground, was punishable with imprisonment for a year and a day, besides a fine at the King's pleasure. In Elizabeth's reign the imprisonment was reduced to three months; but the offender was to find security for his good behaviour for seven years, or lie in prison till he did. Edward III., when he invaded France, took thirty falconers with him, who had charge of his hawks. Queen Elizabeth often enjoyed this royal sport, as did her successor James I. Neither were the clergy behind in their patronage of hawking. Hawks and hounds were even taken to church. According to the *Originalia* rolls, 35th Edward III., it appears that the prices which the sheriff was to give for hawks for the King's use, were for a falcon gentil, 20*s.*; a tersil gentil, 10*s.*; a tersil lestour, 6*s.* 8*d.*; and a lanner, 6*s.* 8*d.* In an account book, 20th Henry VIII., a gos-hawk and two falcons are prized at £3, and five falcons and a tersil at £8. In 1619, a gos-hawk and a tersil were sold for a hundred marks, or £16 : 5*s.*

The birds chiefly employed in these sports were the gerfalcon, the falcon, the lanner, the sacre, or falcon gentil, the hobby, the kestril, and the merlin: these were called the long-winged hawks. The gos-hawk, the sparrow-hawk, the kite and the buzzard, which were denominated the shorter-winged hawks. The falconer depended upon the long-winged hawks for taking the larger birds, as herons and cranes; while the shorter-winged hawks were employed for

the capture of smaller birds. It is worthy of remark, that in the practice of hawking, the female birds were always preferred, not merely for their superior size and courage, but also for their greater aptitude in training, and ready obedience when on flight. In the language of falconry, the female peregrine was exclusively called the *falcon;* the male peregrine the tercel, tiercel, and tiercelet; young peregrines of a year old were called, the female a red falcon, and the male a red tiercel, to distinguish them from older birds, which were called haggards.

The directions for training these birds were as follows :—after the feast of St. Margaret, the *branchers,* that is birds who could just fly, were ensnared. Then the young prisoner was to be blindfolded, technically termed *inseele,* which at first was done by sewing up the eye-lids with needle and thread, but afterwards simply by a bandage. The bird was next placed on the perch, and left a night and a day in darkness, and without food. Next the poor sufferer was taught to sit on the hand; the second night after being fed, it was to be kept awake all night and the next day, to make it tame, when plenty of hot capon was to be given it. Great patience and temper, if not wit and talent, were really required in teaching and training these fierce birds. The bird was next to be carried about, accustomed to the sight of dogs and horses, to hear all kinds of noises, and made to stand before a fire, without flinching or blinking. The bird was then to be brought by easy degrees to her *lure,* first by dainties, making her jump upon your fist, then to fall upon the *lure,* when held out to it, and then to come at the sound of your voice; and to delight her

the more with the *lure,* it was to be ever garnished, on both sides, with warm and bloody meat. The *lure,* or hawker, was a staff about twenty-two inches long, cased at the upper part with iron, having a bell, and the figure of a bird carved at the top. When this instrument was shaken, a well trained hawk would descend to it from the clouds; but in a bird of the highest training, the sight of the hood, and the call of the falconer, were enough. If during the training the bird became indocile, one meal was then to serve for three; but being tamed by low diet it was again to be coaxed by *tit bits.* When a young hawk was taken into the field, it was at first only cast off at pigeons, or easy game, least the bird being foiled, or punished, at her first beginning, should lose her courage, or become *foul.* If the hawk killed the bird at which it was cast, it was rewarded with the head and neck of the captive, which was cut off, and rubbed over with blood. Having thus regaled itself it was left some time "to rejoice," that is to clean its beak, and prune its feathers. Hawks were always taken to the field hooded. The hoods were to be drawn very gently over their heads, least they should be annoyed by them. Two bells were also attached to the hoods, which were neither to be too heavy, or of unequal weight, but one bell was to be a note at least higher than the other. Hawking gloves were worn both by gentlemen and ladies. Spaniels or other dogs were also required.

The hawk when fully trained was taken out either in *cast* or in *lese,* that is in couples or in threes, and when the hunting party had reached a

proper elevation to rouse the bird, the hawk was freed from her head-gear, and was cast off from the sportsman's fist with a loud whoop to encourage it. The pursuer and the pursued would sometimes fly so high as almost to be lost in the clouds. When the hawk reached a proper elevation above the game, she shot down upon it with all her force and velocity. Sometimes the hawk would be killed by the crane, or heron, which it attacked; but generally they fell both from the sky together, and the object of the sportsman was, either by running on foot, or galloping his horse, to get to the spot as soon as they should reach the ground, in order to assist the hawk in her struggle with its prey. The victim being secured the hawk was fed, and again made "to rejoice," as before described, when the hoods were replaced, and the party wended their way towards home. Such was the royal sport of hawking. We will only add, that though this practice is now unknown in western Europe, it is still common in Turkey, Persia, and India.

The Peregrine Falcon varies in length from a foot to a foot and-a-half; the beak blue-black; the cere and eye-lids yellow; the eyes dark hazel; the head and neck nearly black; the back and prevailing colour, varying at each moult, bluish slate colour: wings and tail dark brown; legs and toes yellow, with black claws.

The habits of this bird are strictly carnivorous, feeding upon land and water-fowl, with rabbits and hares. It is naturally fierce and rapacious, especially the females. It builds on high rocks; sometimes on the coast of England, but more frequently in Scot-

land, especially in the locality of St. Abb's Head, Frith of Forth. It has from two to four eggs, which are of a pale reddish brown. Zubervile, an old English writer, says, that this bird is called *peregrine,* because no man, christian or heathen, can find their eyrie in any region; and farther, because they seek so many strange and foreign coasts, and range so far abroad.

It is quite true that this bird may be called a citizen of the world, being found in all the mountainous countries of Europe, though very rarely in champaign countries; and never in marshy districts. It is well known at a particular season of the year, at Hudson's Bay; aud Captain Parry brought home several specimens from Melville Peninsula, now preserved in the British Museum. It is a summer visitor of the northern parts of America; and in winter frequents the shores of New Jersey and Pennsylvania, where it is celebrated for the havoc which it makes among the water fowl. The ducks which are struck by this marauder, are lacerated from the neck to the tail; giving the fatal blow in passing; the bird deliberately returns to pick up its prey.

THE JER-FALCON.

(Falco gyrfalco.)

This is an elegantly formed bird, having its bill much hooked and yellow; the iris dusky; the throat white, which is also its general colour, spotted with brown; the breast and belly are marked by lines pointing downward; the spots on the back and wings are

larger than elsewhere; the feathers of the thigh are very long, and of pure white; those of the tail are barred; the legs are pale blue, and feathered.

The habitat of this bird is to be found in the cold and dreary regions of the north. In Russia, Norway, and Iceland, it is common; rarely to be seen in England, and only occasionally in Scotland and the Orkneys.

It is the most formidable and intrepid of the falcons, eagles only excepted; and was, as we have already mentioned, highly esteemed for falconry. Though never a voluntary visitor to a warm climate, yet when transported thither, it loses nothing of its native strength, energy, and cruelty. It boldly attacks the largest of the feathered race; the stork, the heron, and the crane, becoming its victims. Neither are fawns, goats, or other animals of large size, secure from its attacks: the female is more rapacious than the male.

THE KESTREL.

(Falco tinnunculus.)

The wings of this bird end at about three-fourths the length of the tail; the upper part of the plumage, of the male particularly, is variegated with numerous black spots; wing-feathers banded interiorly; claws black. The length a little more than a foot.

The kestrel is by far the most elegant of the smaller British falcons, especially the male bird. It is a common inhabitant of our rocky coasts, and is also

widely spread throughout Europe. Though naturally wild and fierce, yet when taken young it may be easily domesticated. It feeds on moles, field mice, frogs, and small birds.

This tyrant is often to be seen hovering in the air, and fanning with its wings by a gentle motion, or wheeling slowly round, at the same time watching its intended victim; at length it darts upon it with the swiftness of an arrow.

Its nest is usually built in the holes of rocks; and the eggs, four or five in number, are of a dirty white, blotched with rust colour of various shades.

The male and female so much differ that they may easily be taken for birds of different species.

THE HOBBY.

(Falco subbuteo.)

This is another of the falcons, the name of which has already been mentioned in connexion with falconry. It is about the size of the kestrel just described, but a bird of less activity and courage. The bill is blue; the prevailing colour of the bird is a bluish-black, the breast and belly being much lighter; the wings are brown; the tail a deep dove colour, marked with white.

The hobby is migratory, visiting us about April, for the purpose of incubation: having brought up its family, it retires from our country, leaving in October for some more congenial abode.

Though the reputation of this bird has passed away with falconry, it still continues in a state of unceasing warfare with larks, which constitute its favourite food. Great numbers of these hapless but pretty songsters being, by this means, yearly destroyed.

THE MERLIN.

(Falco æsalon.)

This bird is the smallest of the falcon family, not exceeding the blackbird in size. The head, back, and wings are a reddish-brown, tinged with ash; the quill feathers dark, with reddish-white; the tail is long and marked with alternate dusky and pale bars; the legs are yellow, with black claws.

Though small, the merlin is not wanting in courage, and like other little people, considers itself equal to any of its tribe. Its food chiefly consists of small birds. One peculiarity in this species must not be overlooked, namely, that contrary to all other falcons the male and female are of the same size.

The merlin is known to breed in woods, laying five or six eggs, but seldom in Great Britain, since this visitor does not usually arrive amongst us till October. A nest of this bird was, however, discovered a few years ago in Northumberland, with three young ones about half grown. The nest was in the middle of a high clump of heath, and so well concealed, that it would not have been discovered, but for a setting dog making a point at it.

THE GOS-HAWK.

In Heb. *Netz.*—(Falco palumbarius.)—In Eng. *The Flyer.*

"*Doth the* HAWK *fly by thy wisdom, and stretch her wings towards the south?*"—Job, chap. xxxix., 26.

The word employed in this text equally applies to the falcon and the hawk, because of their amazing rapidity of flight, and the length of their migrations. The venerable patriarch, in the passage above quoted, refers to that astonishing instinct which teaches birds of passage to know their times and seasons, when to migrate out of one country into another for the purposes of incubation, a better supply of food, or for a warmer or colder climate. The real meaning of the passage, says Dr. Harris, is—"Doth she know, through thy skill or wisdom, the precise period for taking flight, or migrating and stretching her wings towards a southern or warmer climate?" The passage is well rendered by Sandys:—

> "Doth the wild haggard tower into the sky,
> And to the south by thy direction fly?"

her migration not being conducted by the wisdom and prudence of man, but by the superintending and upholding providence of God.

Hawks may be reckoned as the third family amongst birds of prey. Their wings are comparatively short, ending at about two-thirds the length of the tail, the first wing feather being shorter than the second, the third nearly equal to the fourth; feet with long toes, especially the *tarsus,* or hindermost toe, the intermediate one being the longest; the claws are much bent, and very sharp.

The upper parts of the gos-hawk are a blue-ash colour; a broad white stripe is above the eyes; the under parts white, with transverse bands of dark brown; tail ashy, with several dark bars; the bill bluish-black; the cere yellowish-green; the iris and feet yellow. The length of the female is about two feet, the male one-third less.

The gos-hawk is entitled to be ranked amongst British birds; for, though it is seldom seen in England, or even on the mainland of Scotland, it is far from uncommon in the Orkney Islands. It more generally chooses a high tree for building its nest, the female laying from two to four eggs, of a bluish-white, spotted with brown.

This bird is very destructive to game, pigeons, and poultry, dashing through the woods after its prey with surprising impetuosity; still it has but little *pluck*, for if it cannot immediately catch the object of its pursuit it becomes discouraged, desists, and perches on a neighbouring tree, waiting some more favourable opportunity. In the palmy days of hawking, though it was in higher estimation than any of the short-winged hawks, it was often condemned for its want of perseverance, as a *foul* bird.

The gos-hawk is widely spread over the north of Europe, Chinese Tartary, and North America. Hawking is still a favourite amusement in China, the Emperor keeping a number of birds for that purpose. When he goes on a hunting excursion, he is attended by his grand falconer, and a large number of persons of inferior rank. Every bird has a silver plate fastened to its foot, inscribed with its keeper's name, that it may be restored, in the event of its being lost.

THE SPARROW-HAWK.

(Falco nisus.)

The length of the male bird is about a foot, the female a fourth part larger. Its bill is blue, and furnished with bristles at the base; the eye bright orange; the top of the head, and all the upper parts a dusky brown; the tips of the tail feathers, the breast, belly, and under coverts of the wings and thighs are white, finely barred with brown; the legs and feet are yellow, the claws black. The male bird considerably differs from this description, the upper part of his body being of a dark lead colour, and the bars on his breast much more numerous.

The nests of these birds are built either on high rocks, lofty ruins, or in hollow trees. The number of eggs range from four to six, which are of a dirty white, blotched at the larger end with reddish spots.

Sparrow-hawks, though far from being large birds, have ever been distinguished for their daring courage, and ceaseless depredations. In one of their nests, containing five young ones, Mr. Selby, a distinguished ornithologist, found a lapwing, two blackbirds, a thrush, and two green linnets, all recently killed, and partly divested of the feathers. In the absence of more dainty food they will also prey upon mice, moles, lizards, and snails.

These birds, when taken young, may easily be tamed; but such is their innate voracity, that though the young are reared together, the female birds, being the larger and stronger, will, if possible, destroy and devour the males.

Their habitat is extensive, these beautifully-coated marauders being very numerous in different parts of the world, from Russia to the Cape of Good Hope.

THE KITE.

(Falco milvus.)

"*And these are they which ye shall have in abomination among the fowls: the* KITE *after his kind.*"—LEVITICUS, chap. xi., 13, 14.

THE word Kite occurs only twice in the Bible, namely, in the above-quoted passage, and in Deut. xiv. 13; but neither of these passages throw any light upon the particular species intended, but simply that the falcon family, as birds of prey, were interdicted to the Jews.

Kites form the fourth section of the birds of prey. The nostrils of these birds are placed obliquely, with a fold at their exterior margin; the tarsi short, and feathered a little below the knee; wings very long, the third and fourth feathers longest; the tail forked, being a distinguishing characteristic of this family.

The upper parts of the body of the kite, or glead, is a reddish-brown, the feathers bordered with a brighter colour; lower parts ferruginous, with dusky spots; feathers of the head and neck whitish, striped with brown; the tail a bright ferruginous colour; bill hooked at the end; cere, iris, and legs yellow. Length, about two feet two inches.

The flight of this bird is so peculiar, that by this alone may the kite be known, sailing or gliding

the sportsman of shooting what may be wanted, firing as fast as the gun can be loaded.

The season of love commences immediately on the arrival of this bird in the southern States; and, since their courtship takes place on the wing, their motions are then more beautiful than ever. The nest is constructed on the top branches of the loftiest oaks or pines near the water, and is externally formed of dry sticks, intermixed with moss, and lined with coarse grass and feathers. The eggs are from four to six in number, of a greenish-white colour, with blotches of brown. The male and female sit alternately, the one feeding the other. This may be true as regards the swallow-tailed kite, but with birds generally it is otherwise, the work of incubation falling chiefly, or entirely, upon the female bird, the male taking care, from time to time, to supply his voluntarily-imprisoned mate with a supply of food. The success of incubation, as is well known, depends upon the constant application of a certain degree of heat applied to the eggs. This is the reason why the female amongst birds so rarely and so unwillingly leaves her nest, lest the eggs should become chilled. This natural process has led to the hatching of chickens by the application of artificial heat. To this subject we will take occasion again to advert. Reáumur, a celebrated naturalist, tells us of a lady who hatched four goldfinches from five eggs, by keeping them in her bosom during ten days successively. The story is quite possible; but we presume that ladies do not often employ their bosoms for such purposes.

The swallow-tailed kite is a rare, and, probably, an accidental visitor also to Great Britain. In 1772 one

of these birds was shot at Balachoalish, Argyleshire, and another, in 1805, was taken alive near Hawes, in Yorkshire. The latter bird, beaten down by a tremendous thunder-storm, and annoyed by the incessant clamour of a flock of rooks which attacked it at the same time, the distressed stranger took shelter in a thicket, where it was seized before it could extricate itself. The person who caught it kept it for a month, but a door being accidentally left open it made its escape. It first alighted on a tree at no great distance, from which it soon ascended in a spiral flight to a great elevation, and then went steadily off in a southerly direction as far as the eye could trace it.

The length of this bird is about twenty inches; its beak and cere bluish; eyes nearly black; the head, neck, breast, belly, and tail coverts pure white; the back, wings, and tail feathers a glossy purplish black; legs and toes greenish-blue; claws light orange. Altogether it is a most graceful bird.

THE COMMON BUZZARD.

(Falco buteo.)

The buzzards form the next class of rapacious birds. The bills of these birds are small, bending immediately from the base; the wings shorter than the tail, and the first four feathers notched near their tip; the first quill-feathers very short, the fourth the longest; thigh feathers long and pendant; tarsi short, with claws not much hooked.

The plumage of the common buzzard is brown and ferruginous above, white and ferruginous beneath; the cere, eyes, and legs yellow; tail banded with brown. These birds, however, present a singular variety, scarcely two being alike. In length they are about twenty-one inches, and though possessed of strength and ability to defend themselves, having the weapons of the birds of prey, they are notwithstanding cowardly, inactive, and slothful; sitting for many hours together on the same bough, flying before a sparrow-hawk, and easily beaten. They feed on pigeons, partridges, small birds, reptiles, and insects.

Though wanting in courage and energy, the buzzard is a model worthy of imitation in domestic life. It feeds and tends its young with great assiduity, the brunt of the work falling, as is usually the case, very much upon the mother; but should any fatality befall her, the male bird will take charge of the brood, patiently rear the young, and combine in his own person, the duties of both parents, until the orphan progeny can provide for themselves. The nest is usually constructed of small branches, lined with wool and other soft materials. The number of eggs laid seldom being more than two or three.

The buzzard, though a British bird, has an extensive range, being well-known in the wooded parts of the continent of Europe, south of Russia, and inhabits Spain and Italy, passing over the Mediterranean to North Africa: but Trebizond, Smyrna, and Madeira appear to be its limits to the southward.

THE HONEY BUZZARD.

(Falco apivorus.)

This bird is somewhat larger than that just described. Its plumage is brown above, with cineritious bands on the wings; under-parts white with brown spots; the space between the eyes and the bill is covered with close set feathers, resembling scales; the beak is black; the legs of a dull yellow colour, with black claws.

The nest of the honey buzzard resembles that of its congener above-mentioned. It is fond of mice, frogs, and lizards; but generally feeds its young with insects, especially wasps and bees, whence also it receives its name. It does not soar like the kite, but merely flies from tree to tree.

It is found in all the northern parts of Europe, though rarely to be met with in England.

THE MARSH HARRIER.

(Falco rufus.)

The harriers form another family of rapacious birds, having in common a bill bending from its base; the nostrils oblong; the tail long and rounded; wings long, the first quill-feather very short, the third and fourth longest; the tarsi, or hindermost toes, long and slender.

The marsh harrier is sparingly scattered over most of the countries of Europe; yet it is remarkable that

of all the falcon tribe it is the most common both in England and Scotland. On the sandy flats of the coast of Caermarthen no fewer than nine of these birds have been seen at one time, regaling themselves on the carcase of a sheep.

Its plumage is brown; head and breast a yellowish white; bill black; cere and legs yellow. The length about twenty inches.

THE HEN HARRIER.

(Falco cyaneus.)

This bird derives its English name from its predatory visits to the poultry-yard, especially attacking chickens three-parts grown, and which have lost the protecting care of a mother, ever ready to expose her own life for the protection of her young. The head and upper part of the body are bluish-grey; the wing-feathers white at their origin, afterwards black; the under-parts pure white; the eyes and legs yellow; wings short. About a foot-and-a-half long.

The hen-harrier is entitled to be pronounced one of the handsomest of our birds of prey. It always flies low, skimming along the surface in quest of prey. It delights in marshy situations, where it finds its more favourite food, lizards, and other small reptiles; it feeds also upon small birds, especially chickens.

The female makes her nest on the ground, laying generally four eggs, which are of a reddish colour,

with a few white spots. The different localities which birds choose for building their nests admit of no explanation, being guided by an instinct which the ken of human knowledge has never explored. Yet do the same birds, unless under peculiar influences, choose one and the same locality for building; one kind of birds uniformly building on the ground; another kind upon some particular species of trees; a third kind upon rocks; and so on. The architecture of each species amongst birds never varies.

The Cheviot hills, and the shady precipices of Craglake, both in Northumberlandshire, are said to be the favourite spots of this bird in England. The whole of Europe, however, may be said to be its habitat.

THE OWL.

In Heb. *Leeleeth.*—(Strix bubo.)—In Eng. *The Bird of Night.*

"*And it shall be an habitation of dragons and a court for* owls. *The wild beasts of the desert shall also meet with the wild beasts of the island, and the satyr shall cry to his fellow; the* screech owl *also shall rest there, and find for herself a place of rest.*"—Isaiah, chap. xxxiv., 13, 14.

The last of the birds of prey which require notice are the owls, which form a numerous and remarkable family. Their bills are compressed, and bent from their origin, the base surrounded by a cere, covered wholly, or in part by stiff hairs. Head large, and much feathered; nostrils lateral, pierced in the anterior margin of the cere, rounded, open, concealed

by hairs, and directed forwards; eyes very large, the orbits surrounded by shield-like feathers; the legs often feathered to the claws; three toes before, and one behind, separable, the exterior reversible; the first wing-feathers dentated on their exterior border, the third the longest.

The greater number of this genus being nocturnal birds of prey, it would appear natural to look for some peculiarities in them adapted to their way of life. We accordingly find these adaptations specially in their sight and hearing. Our readers are aware, that the eye consists of three coats, and three humours; and in these generalities owls do not differ from other creatures. But though the eye itself be large, the *cornea*, or outermost coat of the eye is very flat, and the aqueous humour inconsiderable; but the middle of the eye, consisting of the crystalline lens, is very convex, throwing the rays of light well concentrated, upon the bottom of the eye, which is covered with the retina, or net-work, which is but a ramification of the optic nerve; the *pigmentum*, or lining of the eye, not being as in human beings, black, but purple or green. The globe of the eye is also immoveably fixed in its socket by a strong elastic, hard, cartilaginous case, covered with a skin formed of fifteen different pieces, placed like the staves of a cask, overlapping a little at the base, or narrow end, and capable of being enlarged or contracted by the bird; this peculiar conformation obliges the bird to turn its head, and thus makes the vision more distinct. For such a marvellous apparatus little light is required; and hence, a faint twilight is sufficient to enable the bird to pursue its

prey. The nictitating, or winking membrane, or third eyelid, is also very large; and the upper eyelid, unlike other birds, is moveable. The concave disc of feathers surrounding the head materially aids vision, by concentrating the rays of light. Owls are farther assisted in their nocturnal depredations, by quickness of hearing. Night-birds alone have a large external ear; though not quite so prominent as in quadrupeds. This opening is generally covered with barbed feathers, more fringed than the others. Even at twilight owls need not always go out in search of food; for when in a building where their prey abounds, they may be seen perched majestically and silently upon some projecting substance, attentive to the least sound. Thus elevated the sounds indicative of their prey must ascend, and the acute sense of the birds being roused, they naturally turn their head in the direction whence the sounds emanate; and thus discover and secure their prey. Of the success of this bird in procuring food during the hours of darkness one proof will suffice. A female owl was one evening surprised on her nest, with her two young ones, and a good supply of food. The old bird, one of the young, and the food were removed; but in the morning, when the nest was again visited, the young one which had been left in the nest had been supplied with three rabbits, taken by the male bird during the night for family use. There is yet another peculiarity in owls which we must just notice. The whole body of the owl is remarkably well-furnished with soft feathers, approaching almost to down, the legs and even toes, being nearly covered with the same. The passage

of the owl in consequence, through the air, is noiseless, like that of a bag of feathers, giving no indications of its approach to the prey. This arrangement seems the more necessary, since the food of the owl consists of animals which are themselves nightly prowlers, and upon the look-out for their own sustenance. By this quietness of flight the victims have no warning of their danger, until they find themselves in the actual grasp of their wily foe.

The great-horned owl is of an ochre colour, marked with black and yellow spots and waves; the throat is white; two tufts of feathers on the forehead; legs covered to the toes with feathers of a reddish yellow; bill and claws horn coloured; iris bright orange. Length about two feet.

This species seldom perches on trees; its haunts being mountainous and rocky situations, deserted towers, precipices, and lonely crags. On these it builds a very large nest, sometimes nearly a yard in diameter, of sticks bound together by fibrous roots, and lined with leaves. The female lays two eggs, somewhat larger than those of a hen. The young are said to be very voracious, but are plentifully supplied by their parents, with food: hares, rabbits, rats, mice, and various reptiles.

Europe is the habitat of the great-horned owl; though it very rarely visits Great Britain.

The word owl too frequently occurs in our authorised version of the Bible; several words in the original Hebrew signifying other animals, yet rendered owl. The extreme difficulty, however, of determining the precise meaning of words referring to the ornithology of the Bible being even greater than that of

the mammalia. There can be little doubt, but that the word translated *screech owl,* in the passage of scripture above quoted, must refer to some species of the owl, fitly designated, as the bird of night.

A variety of the present species of owl is remarkable as the sacred bird of Minerva, and the emblem of wisdom, so much venerated by the Athenians.

THE COMMON BROWN OWL.

(Strix stridula.)

The grey-brown owl has its wing coverts spotted with white; the feathers of the wings and tail being banded across with blackish and reddish-ash colour; the eyes green; the feet feathered to the toes. The length about fifteen inches.

This species has a large range, being natives of most of the countries of Europe; it is also found in Newfoundland and South America, frequenting large and dense forests, concealing itself in the thickest recesses. This bird is one of the most common of the British owls, making itself notorious by its horrible, and to many minds, ominous screechings and hootings; noises which in lonely and quiet localities may be heard for many miles around.

It breeds in the hollows of trees, or in barns and granaries, in which it is welcomed by the farmer, on account of the number of mice which it destroys. Woe be to the tenants of the pigeon-house should this bird pay them an unacceptable visit, since most serious devastation would certainly follow. It lays

from two to four eggs of a dull white colour. The young birds are clothed with a light-coloured down, and soon become tame if fed from the hand. These birds, in common with many other species, are often brought up by the parent birds, after they are in captivity, for if put out of doors within hearing, the old birds, will, during the night, bring them an ample supply of food.

THE COMMON BARN OWL.

(Strix flammea.)

The colour of this species varies considerably, according to age, yellow variegated with grey and brown, being the prevailing colours; the shafts of the feathers are marked with black and white spots; the breast and belly also white; the feet and toes covered with a short down; the eyes yellow. In length a little more than a foot.

The barn, or white owl is found in most parts of the world, as well as in every part of our own country. Its more usual haunts are old churches, decayed towers, and barns. In fine weather it generally leaves its haunt about twilight, and may be seen skimming along the ground, and exploring the neighbouring woods in search of its prey, which consists of rats, mice, bats, and beetles. It does not hoot, but makes a blowing kind of noise, not unlike the snoring of a man who sleeps with his mouth open.

THE GREAT BUTCHER BIRD.

(Lanius excubitor.)

THE order of birds upon which we are now entering, is not very clearly defined, nor is it easy to do this with great precision. The great modern naturalists consider, very properly, that the principal discriminating marks of this order must consist either in the variety of their beaks or their claws.

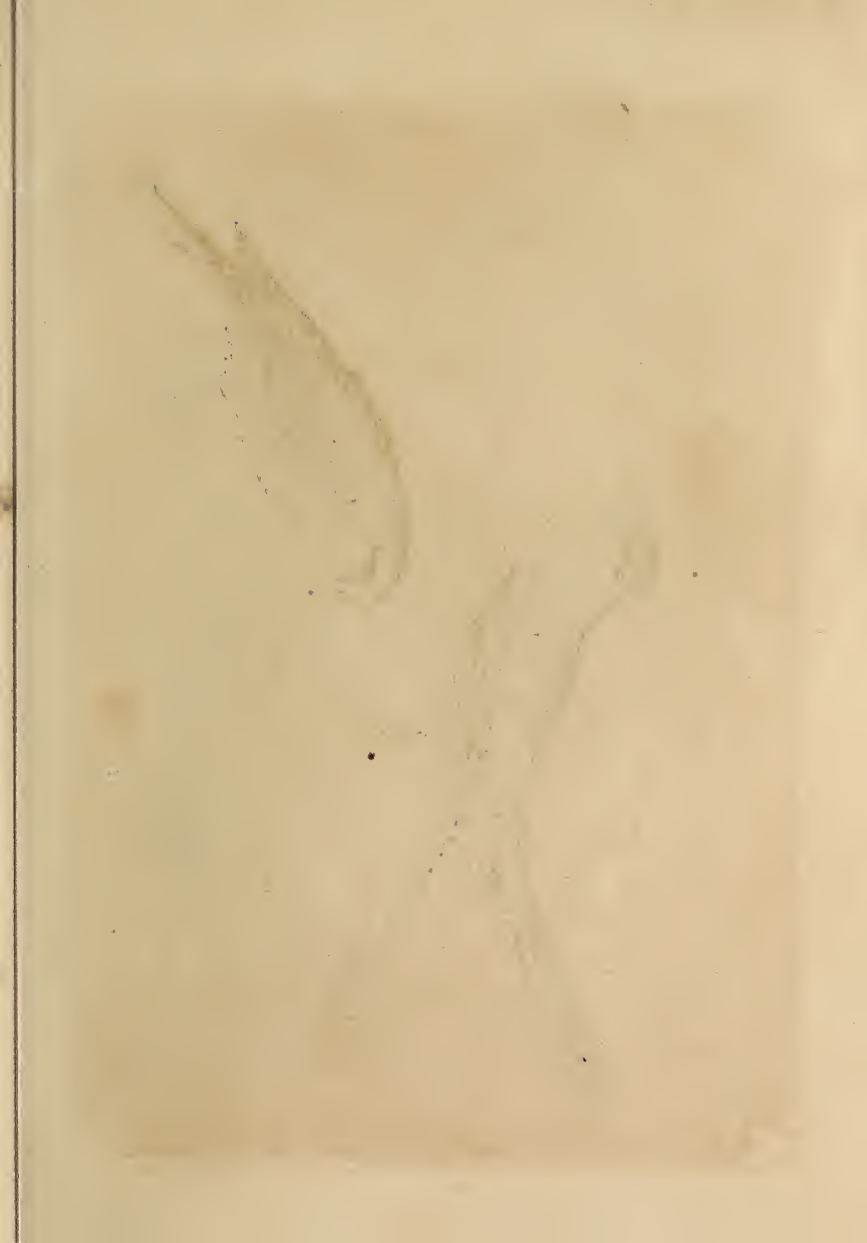
The genus *lanius*, or butcher-bird, has a short bill, but strongly hooked; the wings of moderate length, somewhat pointed; tail rounded; toes free and equal. The colour of the butcher-bird on the head, nape, and back is bright ash, a band passing between the eyes; the under-parts pure white; the wings black and white; the bill and feet a deep black. Length nine or ten inches.

This bird has never been known to breed in England, although it is an occasional visitor here. It is found in Denmark, Norway, Sweden, Russia, and Germany. In Holland it is rare; but rather a common bird in France, remaining there throughout the whole year, frequenting woods in summer, and open plains in winter. It is also found in Spain, Portugal, and Italy. Its food consists of mice, frogs, small birds, and insects. It derives its name of butcher-bird from its habit of suspending its prey, after it has killed it, upon a thorn; hanging it up, as a butcher does his meat.

An adult bird of this kind was taken near Norwich, in 1835, and lived with its owner for about twelve months. It became very tame, readily taking food from the hand. When a bird was given to it, it invariably broke the skull, and generally ate the head first. It sometimes would hold a bird in its claws, and pull it to pieces in the manner of hawks; but usually preferred forcing part of it through the wires, and pulling at it. It always hung what it could not eat upon the sides of the cage. It would often eat three small birds in a day. In the spring of the year it became very noisy, its cries much resembling those of a hawk.

In the palmy days of falconry, though the butcher-bird was deemed unworthy of being trained itself, it was nevertheless employed in catching hawks for that purpose. A small bag-net having been placed in a favourable situation, and so arranged that it could be drawn over quickly by a long string attached to it, a pigeon of light colour being tied on the ground as a bait, and the falconer concealed, at a convenient distance, in a hut made of turf, to which the string of the net reached, a butcher-bird was also tied on the ground near the hut, two pieces of turf being set up to serve it for a place of shelter from the weather, or of retreat from the hawk. The butcher-bird, on perceiving its enemy at a distance, by screaming loudly, which it never failed to do, and running under the turf for protection, hereby gave notice to the falconer to pull the string of the net the moment that the hawk pounced upon the pigeon.

This bird has the reputation of being a mimic. Its



GREAT AND LESSER BUTCHER BIRD.

whistle, it is said, somewhat resembles that of the grey parrot; its own warbling being most agreeable, but often spoiled by the introduction of harsh and discordant notes.

Its nest is generally built on trees, and made of grass stalks, roots, and moss, with a lining of wool or down. The eggs are from four to six, of a greyish-white, spotted at the larger end, with brown and ash.

THE LESSER BUTCHER BIRD.

(Lanius collurio.)

This bird, though less than the last described, being only about seven inches long, greatly resembles its compeer in fierceness and cruelty. The back and wing coverts are a reddish-brown, the back of the head and neck grey, the throat and vent white; breast, belly, and flanks rose-red; tail wedge-shape, the middle feathers black, marked and tipped with white, the legs and feet black.

It is found throughout Europe, but is a rare bird in Great Britain. Hedges and low bushes are the usual places for its nest; the number of eggs about six, of a whitish colour, with a brown-reddish circle towards the larger end.

On seizing their prey, especially the larger chafers, they habitually transfix them on thorns, and then tear off the body, till only the wing-cases, the wings, and head are left. Small birds, and even some of their own kind, are often destroyed by these

cruel marauders. A gentleman kept a young brood of this species for some time, but though they lived in amity for about two months, they then beeame so very pugnacious, that two out of the four were at length killed.

THE SPOTTED FLYCATCHER.

(Muscicapa grisola.)

The flycatchers form a most extensive family, being alike known in all latitudes. The bills of the birds are strong and depressed at the base, and much notched; the nostrils partly covered by hairs; *tarsus,* or hinder toe as long as the middle toe, and all of about the same length, but very short. They derive their name from the food on which they chiefly subsist, and which they catch very much on the wing. They take their stand on a bush or post, whence they spring forth on their prey, which they eat without touching the ground, and then return to their former station. Some of them will take fruit, especially the cherry; and so well known are they in the orchards of Kent, as to have received the name of the cherry-suckers.

The spotted flycatcher is about six inches long, bill dusky, and beset with hairs; the head and back light brown, spotted wtth black; the breast and belly white, tinged with red; the legs are black.

This bird is one of our most familiar and quiet visitors, having no song. It appears early in the spring, returning to build its nest on the same spot

year after year, unless it meets with some interference; sometimes choosing to build close to the entrance of a house where people are going in and out all day long. It is by no means nice as an architect, carelessly making its nest of such stubborn materials, that it is wonderful how the artificer could employ them at all. The female lays four or five eggs, spotted with dark rusty red, breeding but once during the season. When the young can fly she retires with them to the woods, as if the better to initiate them in the art of fly-catching. Early in September these birds disappear.

THE AZURE FLYCATCHER.

(Muscicapa azurea.)

The azure flycatcher does not essentially differ from the foregoing, only that instead of a brown coat it assumes one of a beautiful blue. Neither is it a visitor to the British isles, confining itself to a warmer climate, especially Brazil, which seems to be its native home. Its habits, so far as we are acquainted with them, are the same as its numerous congeners.

In countries under the more immediate influence of the sun, the birds of this class are of infinite use, in destroying those numerous swarms of noxious insects which everywhere abound. All nature may thus be balanced, by one animal feeding upon another, and the circle of generation and destruction perpetuated.

THE GREAT TANAGER.

(Tanagra magna.)

The tanagers form the third family of tooth-billed passerines. Their bills are short, strong, and bent at the point; the upper mandible longer than the under, and notched. This gives them great facility in cracking hard seeds and nuts, which form a considerable part of their food. The *tarsus,* or hindermost toe, is of the same length as the middle toe. The second and third quill-feathers of the wing being longest. Their habits are those of the sparrow tribe; but many of them are conspicuous rather for the brilliancy of their plumage, than the beauty of their song. They are all foreign, inhabiting the warmer districts of North and South America, and never visiting Great Britain but in captivity.

The great tanager, in its upper parts, is olive-brown, with the forehead and cheeks blue. It has a black stripe near the jaw. The throat and vent are red, with occasional white spots. In length it is somewhat more than eight inches.

Birds of gaudy plumage, and without song, are in general shy, unsocial, and suspicious, living in the deepest recesses of the forest, and rarely approaching the habitations of man, unless perhaps to the skirts of the orchard, where they sometimes stealthily resort for a taste of the early-inviting, but forbidden cherry.

The nest of the great tanager is built about the middle of May, in some forest tree, but exhibits no particular skill in the architect. The eggs are from

three to four in number; the female contenting herself with a single brood during the year. The early care of the young devolves upon the mother; but after a certain time the male bird becomes unremitting in his attention to them, following them after they have flown, and not unfrequently exposing himself to considerable danger, in the discharge of this domestic employment.

Though members of a numerous species, they are better known by their appearance in the cabinets of the ornithologist than from their habits in their native wilds.

THE GOLDEN TANAGER.

(Tanagra aurata.)

This bird very nearly resembles that just described, excepting in size and colour. It is much smaller than the great tanager, being even less than our common sparrow. The plumage is the principal characteristic of this species, which is a rich golden colour. It makes a twittering noise, but has no song.

THE BLACKBIRD.

(Turdus merula.)

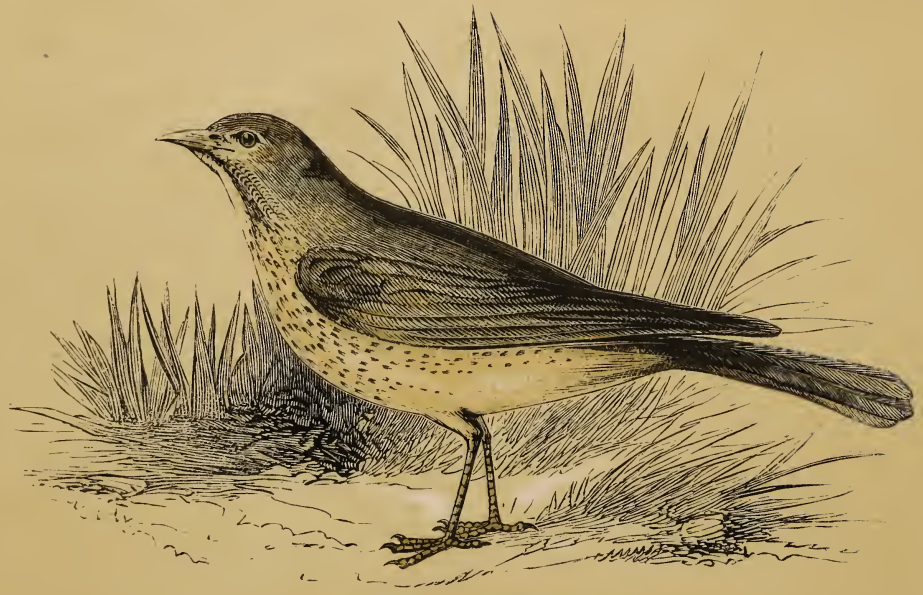
No birds are better known, or more highly esteemed, than that which we are next to describe;

not indeed for the splendour of its livery, but the brilliancy of its song. Blackbirds range with the tooth-billed family, though their upper mandible is but slightly curved, and notched at the point; the base of the bill is furnished with some coarse hairs, which point forward. They have three toes before, and one behind, arranged on the same level; the bill and feet are tawny yellow; the iris and legs black; a yellow circle surrounding the eyes. Length about nine inches.

The male bird is altogether black, but the female is brown, inclining to a rusty colour on the breast and belly, so that it has often been taken for a bird of a different species. This bird is remarkable for its strong musical voice, making the woods resound with its melody. He begins to sing on the first fine day in spring, and continues, excepting during the silent month of August, the moulting season, until the beginning of winter. It is a solitary bird, frequenting woods and thickets, but unlike the thrush, never is to be found in flocks. Blackbirds principally feed on berries, fruits, and insects.

They are early in the work of incubation, beginning to make their nest on the first dawn of spring, and will bring up two or three broods during the season. The female has her nest chiefly in low bushes near the ground, laying four or five eggs, of a bluish-green colour, marked irregularly with dusky spots.

The young birds are, it is said, easily brought up in captivity, and may be taught to whistle a variety of tunes, for which their native vocal powers admirably fit them. Though wild, restless, and timorous,



out-of-doors, the old birds may be readily snared, and soon become reconciled to confinement. They are seldom kept but in cages, having, in aviaries, an incessant propensity to tease and harass their fellow-prisoners.

THE THRUSH.

(Turdus musicus.)

The Thrush, or Throstle, is not distinguished by gay plumage, the upper parts being brown; the breast white, inclining to a yellowish-red towards the tail, and beautifully variegated with spots of a conical shape; the inside of the wings, and the mouth are yellow, as are also the legs; the claws are strong and black. The throstle is larger than the redwing, but less than the missel thrush.

This bird is most highly gifted in song. Amongst our permanently resident singing birds it holds the first place, for the clearness, sweetness, and fullness of its notes. Its song is beside very varied, and of long continuance, beginning early in the spring, and continuing until a late season. After other birds have retired to rest, this pleasing warbler continues to sing until very late at night.

The nest is usually built in bushes, of dried grass intermixed with a little earth or clay, and lined with rotten wood. The female lays five or six eggs, of a pale blue colour, marked with dusky spots. The female is very similar to the male.

THE COMMON BEE-EATER.

(Merops apiaster.)

This bird, although formerly not believed ever to visit Great Britain, has of late years been seen amongst us, it may therefore be regarded as, at least, an occasional visitant to this country. A specimen in the British Museum, has on the label the word Devonshire, where, we presume, it was taken.

The forehead of the bee-eater is greenish-white, the nape and top of the back being chesnut; the rest of the body reddish-yellow; the middle of the wing deep red; the wing and tail-feathers olive-green; the throat golden yellow, with a black semi-collar. The bird is distinguished by the two middle tail-feathers being elongated. It is therefore singularly handsome, inhabiting most of the countries of Europe, especially in the south.

These birds feed on bees and wasps, which they seize on the wing; and it seems surprising, that they are not stung by these insects. They are not, however, confined to this diet, but eat beetles, grasshoppers, and other insects. From the make and shape of bee-eaters, they probably prey also upon fish. Their nests are made in the banks of rivers, where they dig deep holes, laying from five to seven white eggs, the nest being composed of moss and other soft materials. In habits, and general appearance, they greatly resemble the kingfishers, having plumes of brilliant colours, which change according to exposure to light, the prevalent hues being azures and greens.

THE MOCKING BIRD.

(Turdus polyglottus.)

Among the numerous family of the thrushes, there is no species more remarkable than that which now claims our attention. In its general appearance it does not essentially differ from its congeners, the plumage being grey-brown above, greyish-white beneath; the lateral tail feathers, and spot on the wing, white; rump grey blue; legs cenereous. In size about that of our common blackbird.

It is by no means uncommon in the more temperate regions of North and South America, and in several parts of the West Indies. So extensive is its range, that it has been traced from the states of New England to Brazil, although much more numerous in those states which are south of the river Delaware, than in those to the north of it, being in fact migratory in the latter, but permanently resident in the former. A warm and low country, not far from the sea, appears most congenial to the nature of this extraordinary songster.

Its powers of voice are so great, that in the opinion of Audubon, who spent a long life in the study of American birds, and therefore a competent judge, the song of the mocking bird is far beyond that of the nightingale. He compares the notes of the latter to a student under a Mozart; but yet thinks it quite absurd to compare its essays with the finished talent of the mocking bird. Besides the copious volubility of its "wood-notes wild," the imitative powers of this bird are truly amazing, mimicking

with ease, all its fellows, whether of the forests or the waters, as well as many quadrupeds. The lively habits, equally with the vocal powers of this wonderful songster, charm alike the eye and ear of the observer.

The ease, elegance, and rapidity of its movements, the animation of the eye, and the intelligence it displays in listening and laying up lessons from almost every species of the feathered creation within its hearing, demonstrate the peculiarity of its genius. Its voice is full, strong, musical, and capable of endless modulation, from the mellow notes of the wood thrush, to the savage scream of the bald eagle. Keeping close in its imitations to the originals, it notwithstanding improves upon them, making the sweeter sounds more sweet, and adding dissonance to the harsher notes. Mounted on the top of a tall bush, or low tree, at the dawn of day, when the numerous warblers of the forest have already begun the charming *matins,* then does this inimitable vocalist rise pre-eminent over every competitor. The ear can alone listen to this sylvan *Jenny Lind,* the songs of all other birds seeming but an accompaniment. This ardour of song will continue undiminished for an hour together, the vocalist sweeping occasionally round in enthusiastic ecstasy, with expanded wings and tail, glistening with white; the buoyant gaiety of its actions, arresting the eye, as its song most irresistibly does the ear. At other times this bird will give a series of imitations, so startling, that a bystander may well come to the conclusion, that though he sees but a single bird, yet that he is hearing a full choir of the feathered race assembled to-

gether on a trial of skill, each striving to produce its utmost effect. So perfect are the imitations of this king of song, that he often deceives the sportsman, sending him in search of birds, that perhaps are not within miles of him; even birds, themselves, are deceived by this admirable mimic, being at one time decoyed by the fancied calls of their mates; and at another, are driven precipitately into the depths of the thicket, at the supposed scream of their enemy, the sparrow-hawk.

In captivity the mocking bird may lose a little of its natural power and energy of song; yet being a very apt scholar, its mimicking becomes even more expanded. It whistles for the dog; Cæsar starts up, wags his tail, and runs to meet his master. The bird squeaks out like a hurt chicken; when the hen hurries about with drooping wings, for the protection of her young one. Our mimic can bark with the dog, mew with the cat, creak with the ungreased wheel, repeat full and faithfully the lengthened tune of its master's teaching; run over the quivering notes of the canary bird, or the clear whistlings of the Virginian red bird. Such is its love of variety, that in the midst of its melodious and most complicated warblings it will stop to crow with the cocks, cackle with the hens, repeat the shrill reiterations of the *whip-poor-will*, scream with the swallow, or chatter with the jay. These, with twenty other sounds, may be heard in succession, yet the sole performer in this singular concert is the mocking-bird. Neither does this bird content itself with day recitations. No sooner does the moon rise in all the solemn stillness of night, than our songster begins its

delightful solo; serenading the inhabitants of the house through the live-long night, with a full display of its powers, making, in fact, the whole neighbourhood ring with its inimitable melody.

In a state of nature, having spent many a long and pleasant night in musical performances, at a peculiar note of the female, the song of the male suddenly ceases, and he attends to the wishes of his mate. A future family must be provided for; and as an incipient step, their mutual attention is directed to the choice of a site where the nest may be most securely constructed. The orange, the fig, and the pear-tree of the garden, may be inspected; but knowing that man is not their most dangerous enemy, instead of retiring from him, they often seek an abode in his immediate vicinity; choosing, perhaps, the nearest tree to his house. Dry twigs, leaves, grass, cotton, and other substances are selected, and carried to a forked branch of the tree, and there properly arranged. The male bird is the very model of a husband. His mate having deposited five eggs in their newly constructed domicile, he has little else to do than to attend to her comfort, during her confinement. He, therefore, attunes his pipe anew, and serenades his mate to repose. Every now and then, he spies an insect on the ground, the taste of which he believes will be grateful to the palate of his beloved one; he therefore seizes his prey, and beating it against the ground, flies with it to the nest to feed his devoted partner, and receive her sincere thanks. This continues for fourteen days, the period of incubation, when his zeal becomes redoubled to supply the wants of his infant family.

Although this bird is considered, like the robin with us, to be sacred, the planters of Louisiana giving them protection, and never permitting, at any time, a mocking bird to be shot; yet have they enemies in cats, and especially in the black snake, which is the mortal enemy of our songster's eggs and young. Should, however, the marauder, when detected, not make the most precipitous retreat, the special and deadly vengeance of the male bird, rarely leaves the serpent until he has breathed his last.

The food of this species consists of the berries of the red cedar, myrtle, holly, and a profusion of others, with which the swampy thickets abound Of winged insects, likewise, they are exceeding fond, especially while rearing their infant family.

THE FIELDFARE.

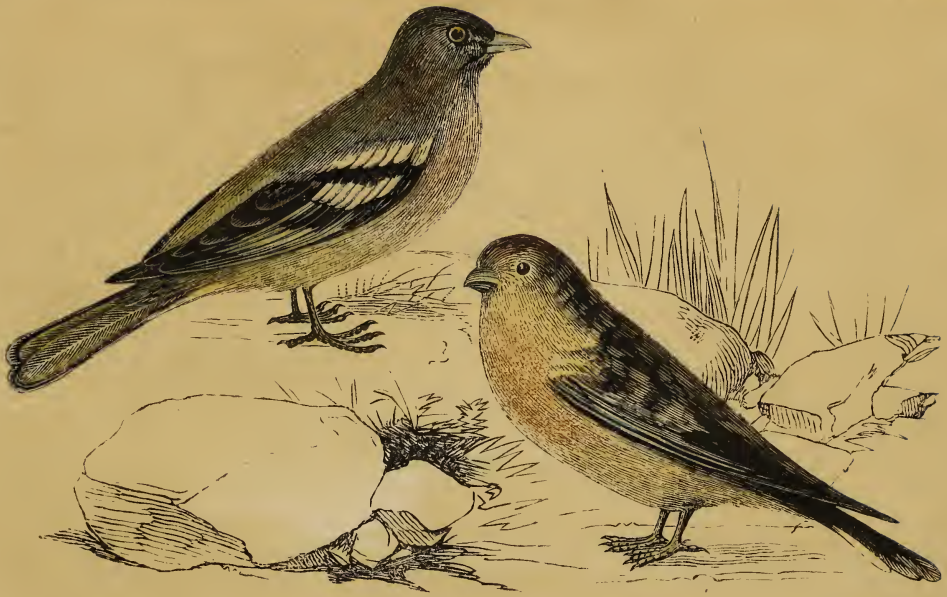
(Turdus pilaris.)

The length of the fieldfare is about ten inches, its head, neck, and lower part of the back, being ash-coloured, the top of the back, and wing coverts, chesnut; the space between the eye and bill black; the throat and breast, bright red, with black triangular spots; the belly pure white; the tail black.

The fieldfare in this country is a migratory bird, arriving here, for the most part, in October or November, in numerous flocks, and frequently remaining until April, but more generally taking its departure in March.

The migration of birds has arrested the attention of naturalists in all ages; but while we are acquainted with certain facts, the precise nature of those facts, and their causes, are to us unknown. Some birds visit us in the spring, and having brought up a family, retire with their young in the autumn of the year; but why they leave, or where, or how they go, remain a mystery. The same remark is applicable to another class who visits us in the autumn, or during the winter, sojourning amongst us until the spring, when, sooner or later, before the season of incubation, they take their departure; never by any chance, breeding in this country. These migrations, in most cases, are so periodical, that no regard seems to be paid, either to the state of the weather, the forwardness or lateness of the season, the actual plenty or scarcity of food, or other adventitious circumstances: many birds make their reappearance almost on the same day of the month, and that for years together. Most of them return, from time to time, to the same locality; while others, as the swallows, come to the same identical spot which they had previously occupied. All this can alone be referred to an impress by the hand of their Maker, but the particulars of which we cannot explore.

Fieldfares, unlike most other thrushes, are of a sociable disposition, sometimes flying singly, but generally in very numerous flocks, often of hundreds, or even thousands, together. In searching for food they are obliged partially to disperse; but even then they seldom lose sight of each other; but when alarmed fly off, and collect together, perhaps, upon the same tree.



During the winter these birds feed upon haws, and other berries; occasionally regaling themselves with worms, snails, and slugs. On leaving this country, they retire, it is supposed to Russia, Norway, Siberia, and Kamtschatka.

THE REDWING.

(Turdus iliacus.)

The redwing requires only a very short notice, being in appearance and habits very like the fieldfare. The bill is brown; the eyes hazel; the plumage like the thrush, but with a white streak over the eye; the feathers under the wing are tinged with red, which is its particular characteristic.

They arrive somewhat before the fieldfares, frequent the same places, eat the same food, and retire from us about the same time. Their song is said to be very pleasing, though unknown to the groves of Great Britain, from the season of the year when they live amongst us.

The female builds a nest in low bushes or hedges, and lays about six eggs, of a greenish-blue colour, spotted with black.

Redwings and fieldfares were considered to be delicate eating by the ancient Romans, who held them in such estimation, that thousands of them were kept together in aviaries, and fed with a sort of paste made of bruised figs and flour, to improve the delicacy and flavour of their flesh. In the opinion of their goodness for the table, modern epicures quite concur.

THE LYRE BIRD.

(Mœnura superba.)

So long ago as the year 1802, lieutenant Collins described the lyre bird, giving a print of the same. He considered it one of the singular wonders of Australia, of which country this bird is a native. It has been chiefly seen in the forests of Eucalyptus and Casaurina, which cover the Blue mountains, and in their rocky and retired retreats. Travellers and authors have been much divided as to what class this *lusus naturæ* belongs; baron Cuvier, however, ranges it with the passerine, or sparrow family.

The bill is depressed at the base, and straight, the tip being obsoletely notched; the nostrils naked, and placed near the middle of the bill. Feet very large, strong, and robust, the fore-toes being nearly equal in length; the claws are of enormous size, in proportion to the size of the bird, and are obtuse and slightly curved. The throat and chin are of a dark rufous colour, the rest of the body of a dusky grey; the wings are also dark rufous. The feathers of the tail are singularly developed, and composed of three different sorts. The twelve ordinary feathers are very long, with loose and very distant barbs; two more in the middle are furnished on one side only, with close set barbs, and the two external ones are curved in the form of an S, or like the branches of a lyre, the internal barbs of which are large and closely set, representing a broad ribbon, while the external ones are very short, and do not become enlarged till towards the end of the feathers. The

female differs very little from the male, excepting in the tail, which, in the hen bird, is composed of twelve feathers, a little curved and plumed, having the upper side of a dark rufous and grey colour; the under, of a pearly white colour. Notwithstanding the sombre hues of this extraordinary bird, the magnificence and peculiar structure of the tail of the male, imitating the form of an ancient *Grecian lyre*, give it a superb appearance. The lyre-bird has never yet been brought alive to this country; but some fine specimens of it may be seen in the British Museum.

These birds are believed to be gallinaceous in their habits, living together in small companies. In the interior of the country, they are far from uncommon; but near the habitation of man, such has been the ardour with which these birds, as well as other animals, have been pursued by the settlers, that a number of species, both of birds and beasts, whether useful or noxious, are rapidly disappearing. Their tail feathers may be purchased in the shops of Sydney, but not at a lower price than from thirty to forty shillings the pair.

The lyre-bird has its young in December, the season when all the wild animals in the colony are produced. It builds in old hollow trunks of trees, which are lying on the ground, or in the holes of rocks; the nest is formed merely of dried grass, or dried leaves, scraped together; the female lays from twelve to sixteen eggs, of a white colour, spotted with blue; the young are difficult to catch, since they run very fast, concealing themselves among rocks and bushes.